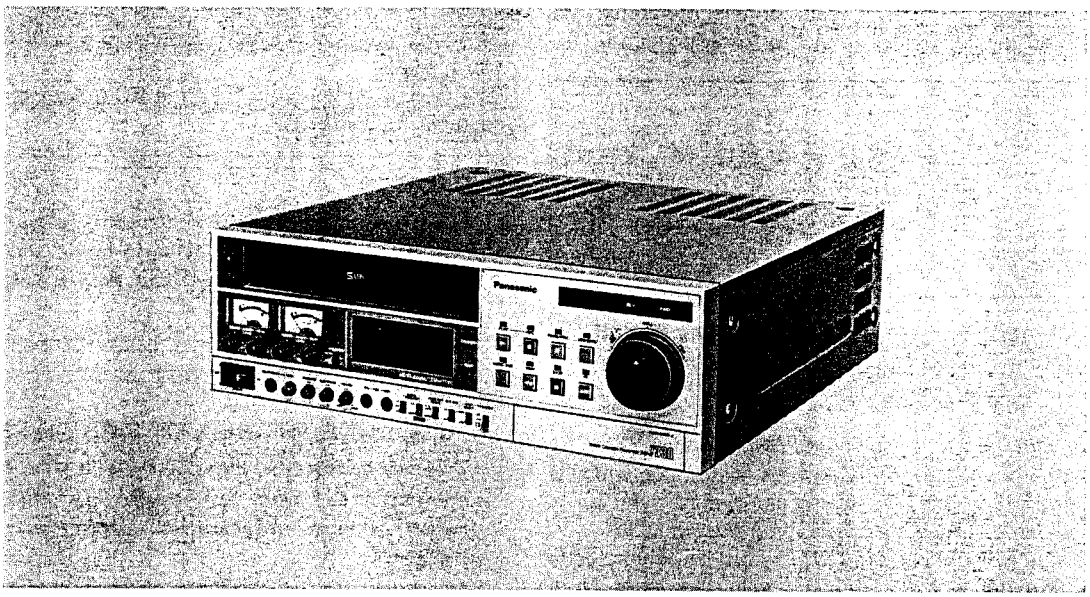
Operating Instructions

S-VHS 625 VHS PAL Hi-Fi

Video Cassette Recorder

Model AG-7330 -A -B -E



Panasonic

Before attempting to connect, operate or adjust this product, please read these instructions completely.

FOR YOUR SAFETY

WARNING: UNAUTHORIZED RECORDING OF COPYRIGHTED TELEVISION PROGRAMMES, FILMS, VIDEO TAPES AND OTHER MATERIALS MAY INFRINGE ON THE RIGHTS OF COPYRIGHT OWNERS AND BE CONTRARY TO COPYRIGHT LAWS.

1. THIS APPARATUS MUST BE EARTHED

To ensure safe operation the three-pin plug must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring.

Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.

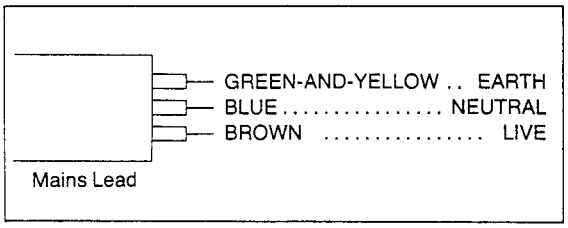
The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

2. DO NOT REMOVE PANEL COVER BY UNSCREWING

To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. And do not insert fingers or any other objects into the video cassette holder.

3. AC POWER CORD CONNECTION (AG-7330-B only)

The wires in the mains lead for this apparatus are coloured in accordance with the following code.



As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured red.

WARNING:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

Remark:

This apparatus was produced to BS 800.

Dieses Modell entspricht der EG-Vorschrift (für Funkstörungsschutz) 87/308/EG.

La Société PANASONIC-FRANCE, importateur du matériel MATSUSHITA-JAPON déclare que cet appareil est conforme aux prescriptions de la directive 76/889/C.E.E. modifiée par la directive 87/308/C.E.E.

Dit model is onderworpen aan de EEG-richtlijn (ter voorkoming van radio-inerferentie) 87/308/EEG.

Denne model opfylder EF direktiv 87/308/EF (for forebyggelse af radio-interferens).

La Società PANASONIC ITALIA S.p.A., importatrice di questo prodotto, dichiara che questo apparecchio è conforme alle disposizioni della direttiva C.E.E./87/308 (D.M. 13. 4. 1989).

Este modelo cumple con la norma EC (para interferencias de radio 87/308/EEC).

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER INSTALLATION OF THE RF CONVERTER AND RS-232C INTERFACE ADAPTOR TO QUALIFIED SERVICE PERSONNEL.

■ If the unit is not going to be used for a length of time, turn the Power OFF and disconnect the power plug from the AC outlet.

■■■ is the safety information.

TABLE OF CONTENTS

Inspection 3
Features 4
Controls and their Functions 5
Initial Setting (ON-SCREEN) 12
Recording 16
Playback 19
VHS Index Search System (VISS) 22
VHS Address Search System (VASS) 25
Timer Recording/Playback 30
Camera Recording 32
Dubbing 34
Synchro Edit Function 36
Audio Dubbing 37
Time Code 38
Selector Switches 39
Controller 41
Remote 42
Interconnections 42
A Word About the Cassette 43
Interface Adaptor (option) 44
Rack Mount Adaptor (option) 46
Maintenance Notes 47
Trouble Shooting 48
Precaution for Handling Unit 49
Specifications ..... Back cover

INSPECTION

Standard Accessories

- S-VIDEO Cable (4P) (VJA0510)
- RF Converter Adaptor

Optional Accessories

- Video Cassette Tape
- Remote Search Controller (NV-A505)
- Editing Controller (AG-A750/AG-A650/NV-A500/NV-A960)
- Remote Controller (AG-A600/AG-A730)
- S-VIDEO Cable (4P) (AG-C71A...5 m)
  (AG-C70A...3 m)
- RS-232C Interface Adaptor (AG-IA232)
- 34Pin Interface Adaptor (AG-IA34)
- Rack Mount Adaptor (AG-M730)
- RF Converter (-A .... ENC47902)
  (-B .... ENC47957)
  (-E .... ENC47956)
  (-EN .. ENC47901)

FEATURES

1. Amorphous heads and high quality picture

Picture quality has been improved by the use of the S-VHS system and the amorphous heads. Resolution of over 400 lines and less noise are realized in the following conditions.

- FM carrier frequency: White peak; 7 MHz
  Sync tip; 5.4 MHz
- Installation of sub-emphasis circuit
- White clip level: 210%
- Use of S-VHS tape

2. High Speed VISS and VASS Automatic Search

By recording a VISS or VASS signal at the beginning of an event on a cassette tape, the event can be searched and then played back automatically. These signals can be recorded and erased easily during playback or recording.

- **High Speed VISS (VHS Index Search System) Automatic Search**
  During the playback of a tape, if a VISS signal has been recorded at the beginning of an event, the scene or song can be searched (within 99 scenes) and then played back automatically. It is recommended to search for the fourth scene or the scene recorded after the scene currently being played back.
- **High Speed VASS (VHS Address Search System) Automatic Search**
  It is possible to search for a specific event and play it back automatically by selecting the number of its corresponding VASS signal.

3. ON-SCREEN mode setting

You can visually confirm each mode on the screen of the TV Monitor.

4. System editing

An editing system can be configured by connecting the AG-7330 with the optional 34Pin Interface Adaptor (AG-IA34) to an Editing Controller.

- Up to three source (playback) units can be connected simultaneously by using a Remote Search Controller (NV-A505, option).
- It is possible to configure a system by connecting the unit to the AG-A750, AG-A650, NV-A500 or NV-A960 Editing Controller (options).

5. RS-232C Interface

The optional AG-IA232 Interface Adaptor allows control capability by remote controller AG-A730.

6. Multi-TV Standard-PAL/CCIR/ NTSC 4.43

In addition to recording and playing back PAL (S-VHS/ VHS) signals, the AG-7330 both records and plays back in the CCIR system (VHS only) and plays back NTSC 4.43 S-VHS/VHS tapes.

7. Dual audio channel Dolby* NR system

Because there are two normal audio tracks, stereo or bilingual programmes can be recorded and played back. The sound quality is further improved due to the built-in Dolby NR system

*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
*"DOLBY" and the double-D symbol ◻◻ are trademarks of Dolby Laboratories Licensing Corporation.

8. Time code recording and playback

The EBU time code can be recorded and played back on the audio CH2 track.

9. H-aligned framing servo

Sometimes, when editing video signals conforming to the CCIR standard, frame phase misalignment or horizontal distortion occurs between adjacent edited portions. This unit employs a framing servo to align the frames, thus eliminating such errors at the edit start and end points.

10. JOG/SHUTTLE search function

A programme segment on the tape can be rapidly and accurately found by using the SHUTTLE search in which the tape speed is varied between 0 and 9 times the normal speed, or the JOG search in which the tape speed is varied in accordance with the rotational speed of the dial.

11. Recording and playback of Hi-Fi sound and assemble editing

You can record and play back Hi-Fi Sound even without a video input signal. You can also independently record a total of four channels, that is Hi-Fi Sound (CH1/CH2) and Normal Audio CH1/CH2.

12. Rack mounting possible due to front loading

The unit is a cassette tape insertion type employing front loading, hence it can be easily installed in an IEC standard 19-inch rack.

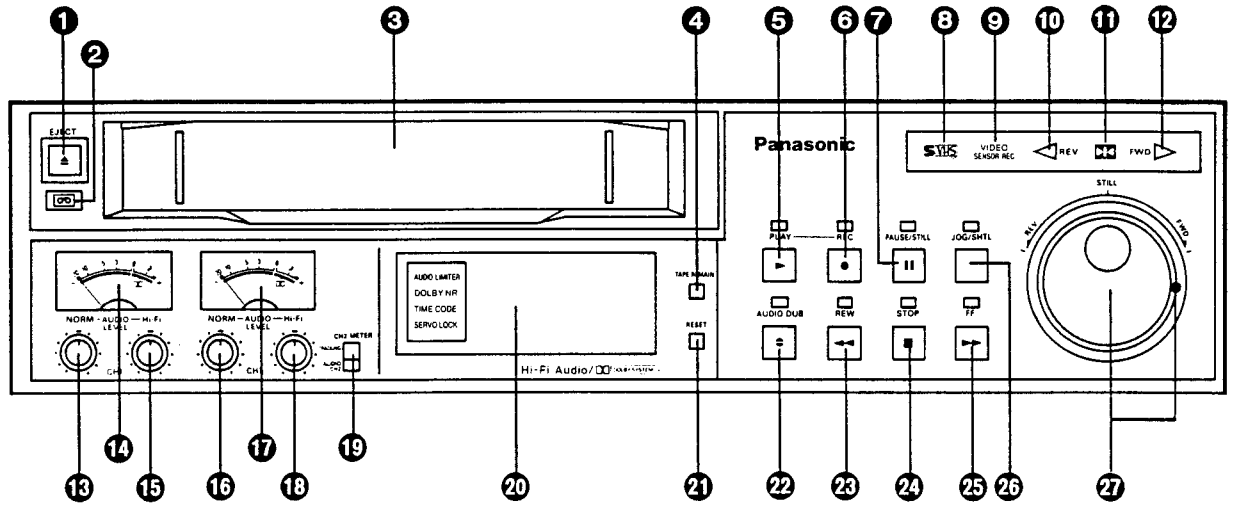
13. Other features

- GT4W Head System enables double fine slow motion.
- Video sensor recording automatically records the input signal from the Video Input Connector.
- Large function display.
- Flying erase-based editing.

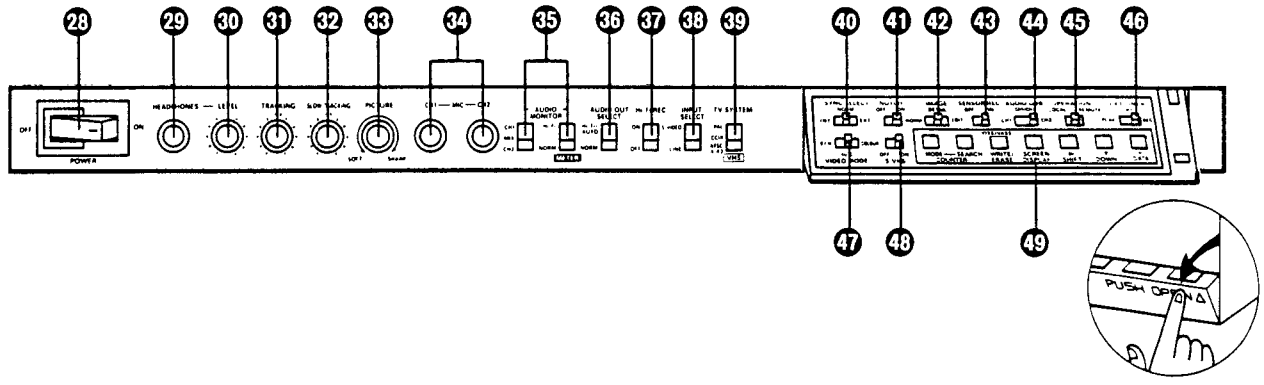
CONTROLS AND THEIR FUNCTIONS

Front

Upper Panel



Lower Panel



❶ Eject Button
Press this button to remove the cassette tape.

❷ Cassette In Lamp
This lamp lights up to indicate that the cassette tape is in the cassette holder.

❸ Cassette Holder

❹ TAPE REMAIN Button
Press this button to indicate the length of the segment remaining on the tape.

❺ Play Button/Lamp
This button is used to playback the tape.
(If you press this button together with Record Button ❻, the unit will go into the recording mode.)
The lamp lights during playback or recording.

❻ Record Button/Lamp
Use this button when you wish to make a recording. When the button is pressed, the lamp will light.
If this button is pressed during stop mode with tape that has removable tabs inserted, the lamp will light up to indicate that recording can be made.

⑦ Pause/Still Button/Lamp
If you press this button, the lamp will light and tape travel will stop. By pressing it once again, the lamp will go out and the tape travel will start again.
Use this button to create a still picture during playback or to pause during recording.

⑧ S-VHS Lamp
This lamp lights up when playing back tapes recorded on S-VHS tapes or by S-VHS mode.

⑨ VIDEO SENSOR REC Lamp
This lamp lights up when the SENSOR REC Switch ㊸ is "ON". This lamp will flash in the following condition:
- The SENSOR REC Switch is set to "ON" when no tape is inserted or tape with broken removable tab is inserted.
- The TV SYSTEM Selector ㊾ is set to "NTSC 4.43".

⑩ REV (rewind) Search Lamp

⑪ Search Still Lamp

⑫ FWD (fast forward) Search Lamp

⑬ Audio (CH1) Normal Audio Level Control
Adjust the recording level of Normal audio CH1 by turning this control while observing meter ⑭.

⑭ Audio (CH1) Level Meter
The meter indication can be switched between Normal/Hi-Fi by means of Audio Monitor Selector ㊺.

⑮ Audio (CH1) Hi-Fi Sound Level Control
Adjust the recording level of Hi-Fi Sound CH1 by turning this control while observing meter ⑭.

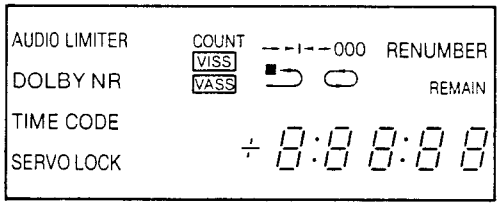
⑯ Audio (CH2) Normal Audio Level Control
Adjust the recording level of Normal Audio CH2 by turning this control while observing meter ⑰.

⑰ Audio (CH2) Level Meter
The meter indication can be switched between Normal/Hi-Fi by means of Audio Monitor Selector ㊺.
If you set Audio CH2 Selector to "TIME CODE" (setting by ON-SCREEN mode), you cannot use normal audio CH2. In this case, if you set Audio Monitor Selector ㊺ to the "NORM" side, the audio (CH2) level meter will indicate the existence or otherwise of a time code signal. This level meter can be used as a Tracking Meter by setting the CH2 Meter Selector ⑲ to "TRACKING" during playback. Adjust the Tracking Control ㊶ until the meter points its maximum position.

⑱ Audio (CH2) Hi-Fi Sound Level Control
Adjust the recording level of Hi-Fi Sound by turning this control while observing meter ⑰.

⑲ CH2 Meter Selector
This selector selects between Audio CH2 Level Meter and TRACKING Meter for Audio (CH2) Level Meter ⑰.

⑳ Tape Counter



Audio Limiter Lamp
When the Audio Limiter Selector is set to "ON" (by ON-SCREEN mode), this lamp lights up.
When this lamp is off, peak levels are not limited.

Dolby NR Lamp
When the Dolby NR Selector is set to "ON" (by ON-SCREEN mode), this lamp lights up and the Dolby Noise-Reduction system is enabled.

Time Code Lamp
When the Audio CH2 Selector is set to "TIME CODE" (by ON-SCREEN mode), this lamp lights up.

Servo Lock Lamp
This lamp lights when the servo circuit is synchronized with the reference sync signal.

-000 :	Indicates the counter (0:00:00) stop mode by pressing the Rewind or Fast Forward Button.
■⊃ :	Indicates the one-time repeated playback mode.
⊂⊃ :	Indicates the continuous repeated playback mode.
REMAIN:	Indicates remaining tape time.
COUNT:	Indicates the linear counter mode. When tape travel starts, the counter will provide an indication of the tape travel in Hours : Minutes : Seconds. When the tape goes past the "0:00:00" point and starts to be rewound, the indication on the tape counter will be prefixed by a minus (-) sign.
VISS:	Indicates the VISS mode and flashes when the VISS signal is recorded or deleted.
VASS:	Indicates the VASS mode and flashes when the VASS signal is recorded or deleted.
→► :	Indicates the search play mode.
→►I◄ :	Indicates the search pause mode.
RENUMBER:	Indicates the VASS renumbering mode.

Note:
Counter function does not work with a tape on which the control (CTL) signal has not been recorded. (CTL is normally laid down while recording video. There is no CTL on a new tape.)

㉑ **Reset Button**
By pressing the Reset Button, the reading on the tape counter will become "0:00:00". Also, the editing point will be reset.

㉒ **Audio Dubbing Button/Lamp**
During playback, audio dub may be started by pressing Play ❺ and Audio Dub Buttons at the same time. Dubbing into CH1, CH2, or both may be done by selecting appropriate channel(s).
- If this button is pressed during stop mode with tape that has removable tabs inserted, the lamp will light up to indicate that audio dub can be made.

㉓ **Rewind Button/Lamp**
Use this button when you wish to rewind the tape. While the tape is being rewound, this lamp is lit.

㉔ **Stop Button/Lamp**
By pressing this button, the entire unit will stop and the lamp will light.

㉕ **Fast Forward Button/Lamp**
Use this button to move the tape forward at high speed. While the tape is traveling forward at high speed, the lamp will be lit.

㉖ **JOG/SHTL Button/Lamp**
By pressing this button, the lamp will light and the unit will go into JOG/SHTL mode. By pressing this button once again during a search, the lamp will go out and the unit will revert to the normal playback mode.

㉗ **Shuttle Ring (outer)/Jog Dial (inner)**
Use this ring or dial to search for the editing points.

㉘ **Power Switch**
By pressing the "ON" side of this switch, power will be supplied to the unit. Also, the audio CH1, CH2, and video/tracking meter lamps will light, and the mode (COUNT, VISS or VASS) set before power OFF will appear on the tape counter (the data will be cleared). By pressing the "OFF" side of the switch, the power will be cut off.

*Aven om denna omkopplare är i "OFF"-läge, harfortfarande en del av apparaten nätspänning.
*Selv am denne omskifter er i "OFF" stilling tilføres en del af apparatet stadig strøm.

㉙ **Headphone Jack (1/4" Phone)**
If you connect 8-ohm input impedance stereo headphones to this jack, you can monitor the audio from either CH1 or CH2, or both channels, in accordance with the setting of the Audio Monitor Selector.

㉚ **Headphone Level Control**
For adjusting the output level of the headphones.

㉛ **Tracking Control**
Set the CH2 Meter Selector ⑲ to the "TRACKING" position, and adjust the Tracking Control until the reading on the meter reaches maximum during the playback of a recorded tape.

㉜ **Slow Tracking Control**
For use with slow motion playback.
Normally leave this control in its centre "FIX" detent position.

㉝ **Picture Quality Adjusting Knob**
This knob is used to adjust picture sharpness during playback.

㉞ **Microphone CH1/CH2 Jacks (1/4" Phone)**
For connecting external microphones.

㉟ **Audio Monitor Selector**
Selects the audio channel which is to be heard on the TV monitor, headphones, through Audio Monitor Output Jack, or VHF Antenna Output Connector.
CH1: To monitor audio CH1 only.
MIX: To monitor mixed CH1 and CH2 audio.
CH2: To monitor audio CH2 only.
Also selects either normal or Hi-Fi for Audio Level Meter ⑭, ⑰, Audio Monitor Connector (❾ on rear panel) and Headphone Jack ㉙.

㊱ **Audio Output Selector**
NORM: Normal Audio is output from Audio Output Jacks (❼ on rear panel).
Hi-Fi/AUTO: If Hi-Fi sound is recorded, Hi-Fi sound will be output. If Hi-Fi Sound is not recorded on the tape, normal audio will be automatically output from Audio Output Jacks (❼ on rear panel).

㊲ **Hi-Fi REC Switch**
ON: Both Hi-Fi and normal audio will be recorded.
OFF: Only normal audio will be recorded.

㊳ **Input Signal Selector**
S-VIDEO: To record video signals from a S-VIDEO source connected to the 4P S-VIDEO Input Connector (⓭ on rear panel).
LINE: To record video signal connected to the Video Input Connector (⓬ on rear panel).

㊴ TV SYSTEM Selector

The 3 VHS system, PAL, CCIR and NTSC 4.43, can be selected.
(To select S-VHS PAL, set this selector to the "PAL" position.)

㊵ Sync Mode Selector

This selector determines the signal which will synchronize the video recorder servo i.e.: external, internal or normal (incoming video).

EXT: To synchronize to the external composite sync signal which is connected to the Sync Input Connector (⑪ on rear panel).
NORM: To synchronize to the input video signal.
INT: To synchronize to the internal 50 Hz oscillator built-into this unit.

㊶ NOTCH Switch

Normally set this switch to the "OFF" position.
- Set to the "ON" position when playing back tapes with luminance and chrominance signals combined (Y and C signals not separated).

㊷ IMAGE Selector

EDIT: When editing, such as dubbing.
DETAIL: When playing back tapes recorded by a video camera designed for S-VHS or S-VHS tapes. Tapes recorded in the VHS mode cannot be played back.
NORM: Normally place the selector in this position.

㊸ SENSOR REC Switch

OFF: Normally place the selector to this position.
ON: When desired to record the input signal automatically. (The VIDEO SENSOR REC Lamp ⑨ lights up.)

> **CAUTION:**
> When the switch is set to the "ON" position, the unit will automatically turn OFF. If a signal is inputted in the Video Input Connector, the unit will turn ON again and start recording.
> The buttons will not operate.

Notes:
- If this switch is set to "ON" when the tape is running, the unit will malfunction. Therefore, make sure the unit is in stop mode before setting this switch to "ON".
- Be sure that the tape counter is in the linear counter (COUNT) mode.
- The SENSOR REC Lamp will flash if the switch is set to "ON" with no tape inserted, tape with broken removable tabs is inserted or the TV SYSTEM Selector ㊴ is set to "NTSC 4.43".

㊹ Audio Dubbing Selector

Selects the audio channel track on which new audio will be recorded.

CH1: To be dubbed into audio channel 1 only.
CH1/CH2: To be dubbed into both channels.
CH2: To be dubbed into audio channel 2 only.

㊺ OPERATION Selector (Remote/Local)

REMOTE: Set the switch to this position when connecting a controller to the Remote Control Connector (⑯ on rear panel). When the switch is in this position, the operation buttons on the unit will be rendered inoperative, and the unit will be controlled by the remote controller. Also, the counter cannot be reset. (The Eject Button will function, however.)
LOCAL: Set the switch to this position when using the unit independently.

㊻ EXT TIMER Selector

REC: To execute timer recording with an external timer.
OFF: Normally place the selector in this position.
PLAY: To execute timer playback with an external timer.
- When performing timer recording or playback, no button operation is needed.

> **CAUTION:**
> When this selector is set to "REC", the VTR will start recording if the power is "ON".

㊼ Video Mode Selector

Used to avoid mistaken operation with the colour/black & white automatic selector circuit.

AUTO: Distinguishes automatically between Black & White and Colour video input signals or playback video signals.
COLOUR: When the colour signal is weak, S/N ratio is insufficient, etc., and the automatic selector circuit does not operate properly, the unit is placed forcibly on "COLOUR".
B/W: When the S/N ratio of the black & white signal is insufficient, causing mistaken operations of the automatic selector circuit, place on "B/W".

Note:
If colour signals are recorded/played back in the black & white mode, or vice versa, the picture quality will deteriorate.

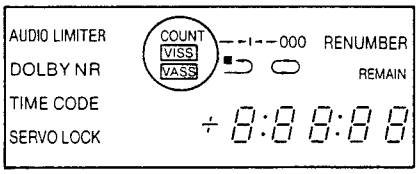
㊽ S-VHS Selector

ON: VHS tape and S-VHS tape are automatically distinguished, and recording is done in the corresponding mode.
OFF: Both S-VHS tape and VHS tape are recorded in VHS mode.

㊾ MODE Button

Each time this button is pressed, the mode indicator in the tape counter will change as shown below.

"COUNT"→"VISS"→"VASS"→"COUNT"...

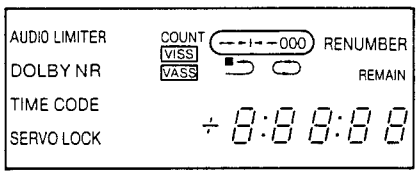


Notes:

- The ON-SCREEN mode will also change at the same time.
- When the mode is changed to another, the repeat function will be set to "OFF.
- Be sure that the 0:00:00 Position Search mode is canceled if the MODE button is pressed.

SEARCH Button

Each time this button is pressed, the following indicator will change as shown below.



•Counter mode

"OFF"→"➡000"→"➡▶"→"➡▶|◀"→"OFF"...

•VISS/VASS mode

"OFF"→"➡▶"→"➡▶|◀"→"OFF"...

- This button will not function during ON-SCREEN mode.

WRITE/ERASE Button

When VISS/VASS WRITE mode is displayed on the screen, this button will function as WRITE Button. When the mode is search pause, the button will function as ERASE Button.

Note:

This button is inoperative when the cassette tape's tab is broken, the SENSOR REC Selector is "ON" or the VTR is in REMOTE mode.

SCREEN DISPLAY Button

Press this button to display the ON-SCREEN mode (counter, VISS or VASS-depending on the selection of the MODE Button) on the screen.

Note:

- This button is inoperative when " ➡▶ " or " ➡▶|◀ " indicator is lighted up, the SENSOR REC Selector is "ON", or the VTR is in REMOTE mode. If the SENSOR REC Selector is set to "ON" or the VTR mode is changed to REMOTE during the menu is displayed on the screen, ON-SCREEN mode will forcibly be canceled.
- ON-SCREEN characters are not recorded on the tape.

When this button is pressed together with the DOWN Button, Initial Setting will be displayed on the screen.

Note:

These buttons are inoperative when the VTR is in VASS SEARCH REPEAT or REMOTE mode.

- Press this button again. The normal picture will appear.

> When the TV System Selector is set to the "CCIR" position, black and white picture may appear if ON SCREEN mode is activated. But the picture is recorded on the tape in colour.

SHIFT Button

This button is used to change the menu pages of ON-SCREEN mode.

Also used to shift the flashing of the indicator rightward.

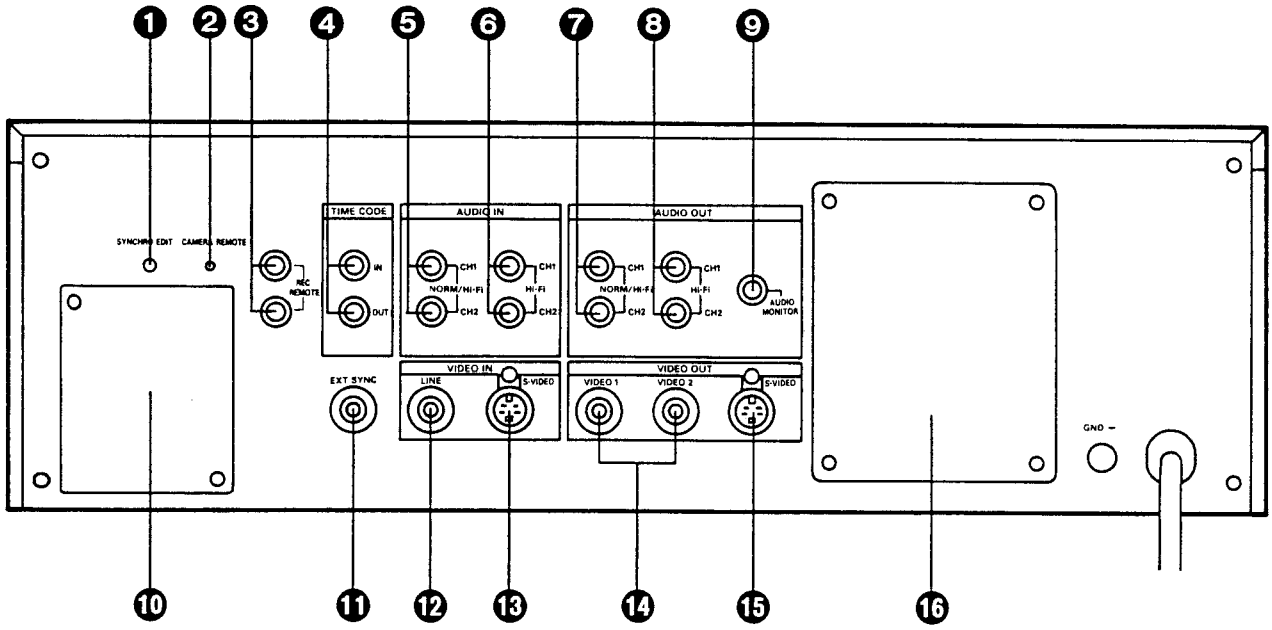
DOWN Button

This button is used to shift the flashing of the line indicator downward.

DATA Button

This button is used to input the digit data and to select the data.

Rear



❶ SYNCHRO EDIT Jack

This is an input jack for simple editing (mini stereo jack). To edit with this jack, use the system equipped with a Synchro Edit Output Jack, such as AG-7450 (with AG-S745) or AG-450.

Note:

Be sure to set the Framing Selector to "OFF" and the Automatic Back Space Selector to "ON" by ON-SCREEN mode.

❷ CAMERA REMOTE Jack

Used to connect the remote control cable from the video camera.

With the signal at low, recording pause mode can be set and the VISS signal can be recorded.

By setting ON-SCREEN, this jack can be used as an input jack for the command to record the VISS signal.

❸ REC REMOTE Jack

Used to record the video and audio signals from the master VTR when the unit simultaneously dubbing several VTRs (up to 100 VTRs maximum).

The recording mode can be set with the signal at low. STOP, EJECT, AUTO-REW, AUTO-REW EJECT and canceling REC REMOTE can be set by ON-SCREEN.

❹ Time Code Input/Output Jack

This jack is used to record and playback time code singal.

IN: Connect this jack to the output jack of a time code generator when you wish to record time code signal.

OFF: Connect this jact to the input jack of a time code reader and play back time code signal.

Note:

Be sure to set the Audio CH2 Selector to "TIME CODE" by ON-SCREEN mode.

❺ Audio Input (CH1/CH2) Jacks

These are the audio input jacks for two channels (CH1 and CH2). They accept signal from external audio equipment such as a tape recorder, record player, etc.

❻ Hi-Fi Sound Input (CH1/CH2) Jacks

These input jacks are intended exclusively for recording Hi-Fi Sound.

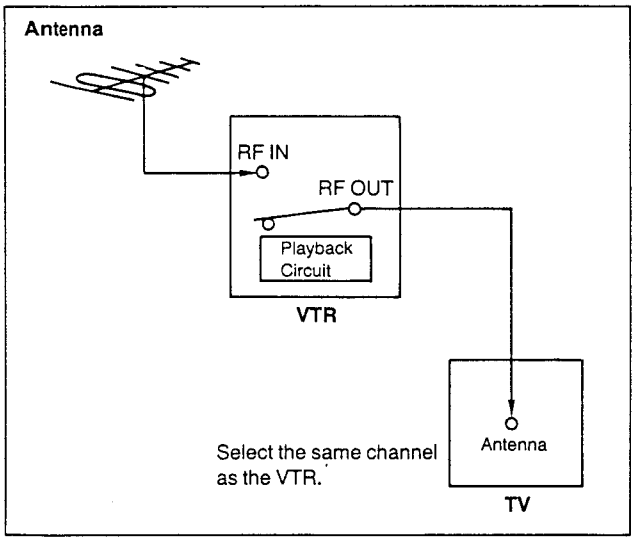
❼ Audio Output (CH1/CH2) Jacks

Connect these jacks to audio (stereo, etc.) equipment using audio cable. You can select either Normal Audio or Hi-Fi Sound using the Audio Output Selector (⑯ on front panel).

⑧ Hi-Fi Sound Output (CH1/CH2) Jacks
These output jacks are intended exclusively for Hi-Fi sound.

⑨ Audio Monitor Output Jack
You can obtain the audio output selected by Audio Monitor Selector ㉟ from this jack.

⑩ RF Converter (option)
An RF converter (optional accessory) will allow you to playback VHS signal into your TV receiver. For this purpose those signals can be viewed through an unused broadcast channel.
If the playback picture shows a patterning interference effect, it may be that the RF converter playback channel requires careful adjustment.
Due to the delicate nature of this adjustment, it should be undertaken by your dealer.



Confirm that the channel is not being used for TV broadcasts. Then set the TV channel to the same channel.

⑪ EXT SYNC Input Connector
To synchronize the unit with the external reference synchronizing signal, connect the composite synchronizing signal of the external system's reference synchronizing signal generator to this connector.

⑫ Video Input Connector
Connect the video signal to be recorded, such as a video camera, to this connector.

⑬ S-VIDEO Input Connector
This is a 4P input connector of separated luminance signal and colour signal.

⑭ Video Output Connector
Connect this to a TV Monitor or a video recorder.

⑮ S-VIDEO Output Connector
This is a 4P output connector of separated luminance signal and colour signal.

⑯ Remote Control Connector (option)
When you wish to operate the unit from a remote location, connect the optional Interface Adaptors to this section.
Connect RS-232C Interface Adaptor (AG-IA232) when desired to remote by remote controller AG-A730.
Connect 34Pin Interface Adaptor (AG-IA34) when using remote controller AG-A600 remote search controller NV-A505 or editing controllers AG-A750, AG-A650, NV-A500, NV-A960.

Note:
Selection of the Editing Controller can be set with the Controller Selector by ON-SCREEN mode.

Initial Setting (ON-SCREEN)

AG-7330 can confirm and set the initial setting visually by ON-SCREEN mode.

When desired to display the initial setting on the TV monitor, press the SCREEN DISPLAY and the DOWN Buttons simultaneously. The following screen will appear.

AUDIO LIMITER	OFF
DOLBY NR	OFF
AUDIO CH2	AUDIO
TAPE SELECT	NORMAL
TAPE IN MODE	STOP
TAPE END MODE	STOP
AUTO BACKSPACE	OFF
FRAMING	OFF
DIRECT SEARCH	OFF
REMOTE PIN	CAMERA

Audio Limiter Selector

Press the DATA Button to select "ON" or "OFF".

AUDIO LIMITER	◀ OFF ▶
DOLBY NR	OFF
AUDIO CH2	AUDIO
TAPE SELECT	NORMAL
TAPE IN MODE	STOP
TAPE END MODE	STOP
AUTO BACKSPACE	OFF
FRAMING	OFF
DIRECT SEARCH	OFF
REMOTE PIN	CAMERA

ON: To minimize distortion at peak levels set the Audio Limiter Selector to "ON". This permits the average level to be set higher for better signal to noise ratio. (In recording.)

OFF: This permits maximum dynamic range to be recorded, but the level must be set low enough so that peaks do not cause objectionable distortion.

Notes:

- The Audio Limiter Selector controls both channels simultaneously.
- When howling is caused by increasing the volume, set the sound volume of the TV monitor to a lower setting.
- After adjusting each channel to an appropriate level, set the Audio Limiter to "ON".

Dolby NR Selector

Press the DOWN Button. The "DOLBY NR" line indication will flash. Press the DATA Button to select "ON" or "OFF".

AUDIO LIMITER	OFF
DOLBY NR	◀ OFF ▶
AUDIO CH2	AUDIO
TAPE SELECT	NORMAL
TAPE IN MODE	STOP
TAPE END MODE	STOP
AUTO BACKSPACE	OFF
FRAMING	OFF
DIRECT SEARCH	OFF
REMOTE PIN	CAMERA

When the Dolby NR is set to "ON" during recording or playback, the Dolby NR Lamp lights. The Dolby NR system is activated, and the sound with less noise is recorded or played back.
Refer to the table below for Dolby NR applications.

During playback / During recording	Dolby NR "ON"	Dolby NR "OFF"
Dolby NR "ON"	Normal Sound (Less noise)	Treble is emphasized
Dolby NR "OFF"	Treble is attenuated	Normal sound (Noise same)

Audio CH2 Selector

Press the DOWN Button. The "AUDIO CH2" line indication will flash. Press the DATA Button to select "AUDIO" or "TIME CODE".

AUDIO LIMITER	OFF
DOLBY NR	OFF
AUDIO CH2	◀ AUDIO ▶
TAPE SELECT	NORMAL
TAPE IN MODE	STOP
TAPE END MODE	STOP
AUTO BACKSPACE	OFF
FRAMING	OFF
DIRECT SEARCH	OFF
REMOTE PIN	CAMERA

TIME CODE: When using the time code signal. The Audio CH2 sound track will be muted.

AUDIO: When using audio signal.

TAPE Selector

Press the DOWN Button. The "TAPE SELECT" line indication will flash. Press the DATA Button to select "NORMAL" or "E240".

AUDIO LIMITER	OFF
DOLBY NR	OFF
AUDIO CH2	AUDIO
TAPE SELECT	◀ NORMAL ▶
TAPE IN MODE	STOP
TAPE END MODE	STOP
AUTO BACKSPACE	OFF
FRAMING	OFF
DIRECT SEARCH	OFF
REMOTE PIN	CAMERA

This selector is used to match time countdown circuits to the type of tape used.

E240: For use with the NV-E240 and NV-T160 tape.
NORMAL: For use with other tapes.

Note:
When playing back NTSC 4.43 VHS tapes, "E240" indication will display "T160".

TAPE IN MODE Selector

Press the DOWN Button. The "TAPE IN MODE" line indication will flash. Press the DATA Button to select the mode.

AUDIO LIMITER	OFF
DOLBY NR	OFF
AUDIO CH2	AUDIO
TAPE SELECT	▶NORMAL
TAPE IN MODE	◀ STOP ▶
TAPE END MODE	▶STOP◀
AUTO BACKSPACE	OFF
FRAMING	OFF
DIRECT SEARCH	OFF
REMOTE PIN	CAMERA

This selector is to select the VTR function mode when a cassette tape is inserted.

The indication will change "STOP"→"REW"→"PAUSE"→ "PLAY" each time the DATA Button is pressed.

TAPE END MODE Selector

This selector is to select the VTR function mode at the tape end.

Selectable from stop mode, eject mode, automatic rewind and automatic rewind then eject mode.

AUDIO LIMITER	OFF
DOLBY NR	OFF
AUDIO CH2	AUDIO
TAPE SELECT	NORMAL
TAPE IN MODE	▶STOP◀
TAPE END MODE	◀ STOP ▶
AUTO BACKSPACE	▶OFF◀
FRAMING	OFF
DIRECT SEARCH	OFF
REMOTE PIN	CAMERA

Press the DOWN Button. The "TAPE END MODE" line indication will flash. Press the DATA Button to select the mode.

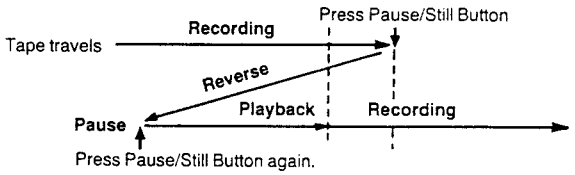
Automatic Back Space Selector

This Auto Back space function is very convenient for use with video cameras which have remote pause capabilities. The automatic backspace function is operational when "ON" is selected. When the Pause/Still Button is pushed during recording, the tape is rewound slightly and set to the pause mode. When the Pause/Still Button is released, recording is made over the previous signals while the tape advances.

AUDIO LIMITER	OFF
DOLBY NR	OFF
AUDIO CH2	AUDIO
TAPE SELECT	NORMAL
TAPE IN MODE	STOP
TAPE END MODE	▶STOP◀
AUTO BACKSPACE	◀ OFF ▶
FRAMING	▶OFF◀
DIRECT SEARCH	OFF
REMOTE PIN	CAMERA

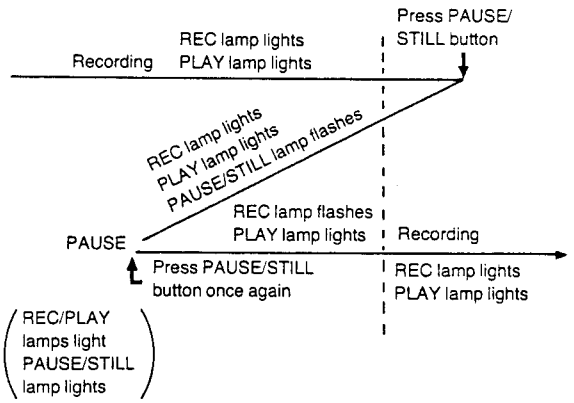
Press the DOWN Button. The "AUTO BACKSPACE" line indication will flash.
Press the DATA Button to select "ON" or "OFF".

●When the Auto Back Space Selector has been set to "ON".

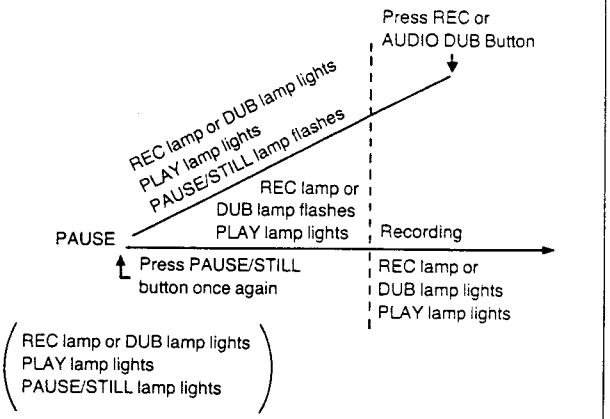


Note:
The reverse and playback time will change depending on the Framing Selector (ON-SCREEN mode).
ON: It will take 4.8 seconds.
OFF: It will take 2.2 seconds.

■ When the PAUSE/STILL Button is pressed during recording, the button's lamp will light or flash in the following way:

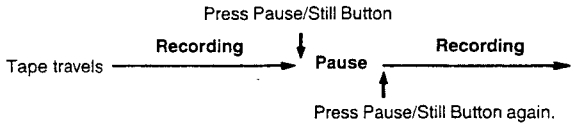


■ When REC or AUDIO DUB Button is pressed during still mode, the button's lamp will light or flash in the following way:



Note:
In the case of audio dubbing, the AUDIO DUB lamp will light or flash instead of REC lamp.

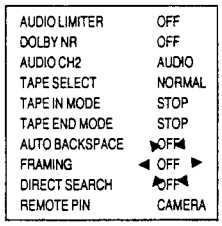
•When the Auto Back Space Selector has been set to "OFF".



Note:
When the Auto Back space Selector has been set to "OFF", noise will appear at the paused portion during playback, but this is not a malfunction.

Framing Selector

Press the DOWN Button.
The "FRAMING" line indication will flash.
Press the DATA Button to select "ON" or "OFF".

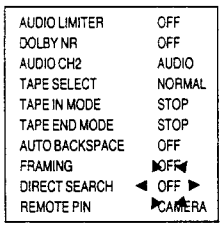


Framing occurs when the selector is set to "ON".

Direct Search Selector

This function allows the performance of direct search operation without pressing the JOG/SHTL Button.

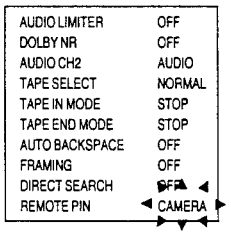
1. Press the DOWN Button. The "DIRECT SEARCH" line indication will flash.
2. Press the DATA Button to set "ON" or "OFF".



Remote Pin Selector

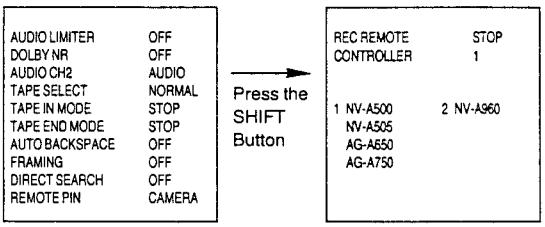
This selector is to select the function of the Camera Remote Connector.

1. Press the DOWN Button. The "REMOTE PIN" line indication will flash.
2. Press the DATA Button to select "CAMERA" or "VISS".



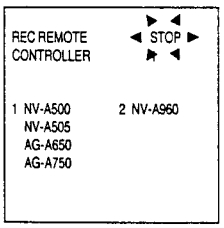
CAMERA: Used for Camera Remote Connector.
VISS: Used for forcibly writing VISS signal.

To shift the initial setting display to the next menu, press the SHIFT Button.



REC REMOTE Selector

Press the DATA Button to select the mode.
Each time the button is pressed, the indicator will change as shown below.
"STOP"→"PAUSE"→"EJECT"→"REW → EJECT"→"STOP"...

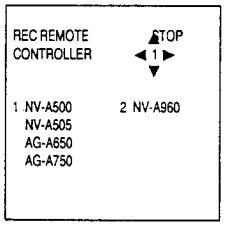


The following kinds of functions are possible with this selector.
- •During recording, the VTR is automatically stopped.
- •During recording, the VTR is automatically paused.
- •During recording, the VTR is automatically stopped, and then the cassette tape is automatically ejected.
- •During recording, the tape is automatically rewound to its beginning, the unit stops, and the cassette tape is automatically ejected.

Controller Selector

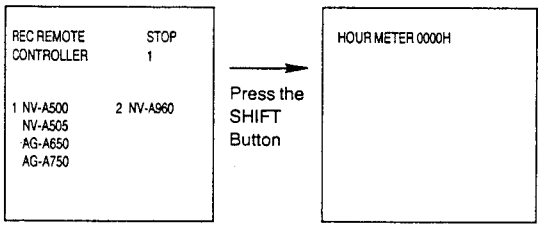
This selector is used to match command electronics to the type of 34P Editing Controller used.

1. Press the DOWN Button. The "CONTROLLER SELECT" line indication will flash.
2. Press the DATA Button to select "1" or "2".



1: Set the selector to this position when using Remote Controller AG-A600, Editing Controller AG-A750, AG-A650, NV-A500 or remote Search controller NV-A505.
2: Set the selector to this position when using Editing Controller NV-A960.

To shift the display to the next menu, press the SHIFT Button.

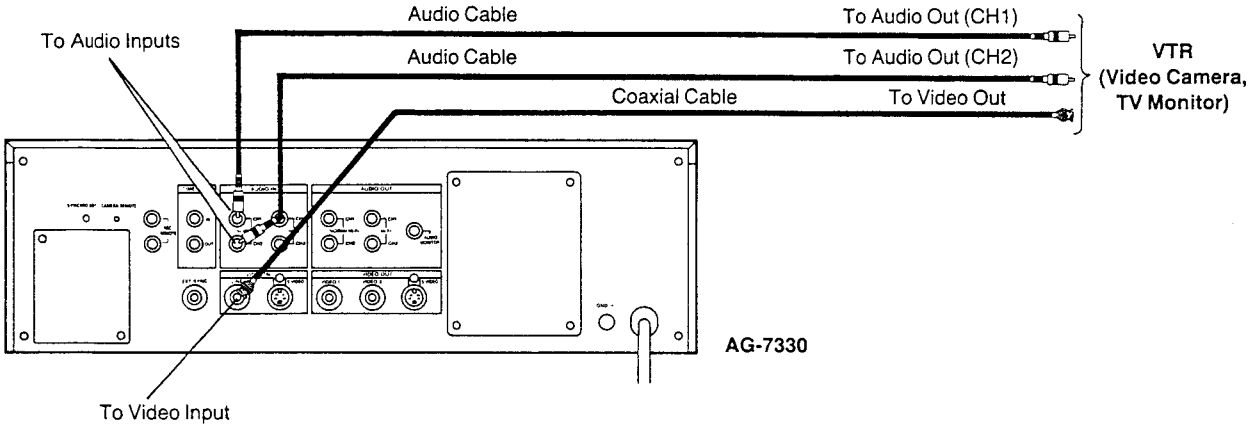


The hour meter informs you of the time the cylinder has been operating.
This helps you decide when to clean the unit or replace parts in order to ensure the best performance.
For details, consult your local service centre.

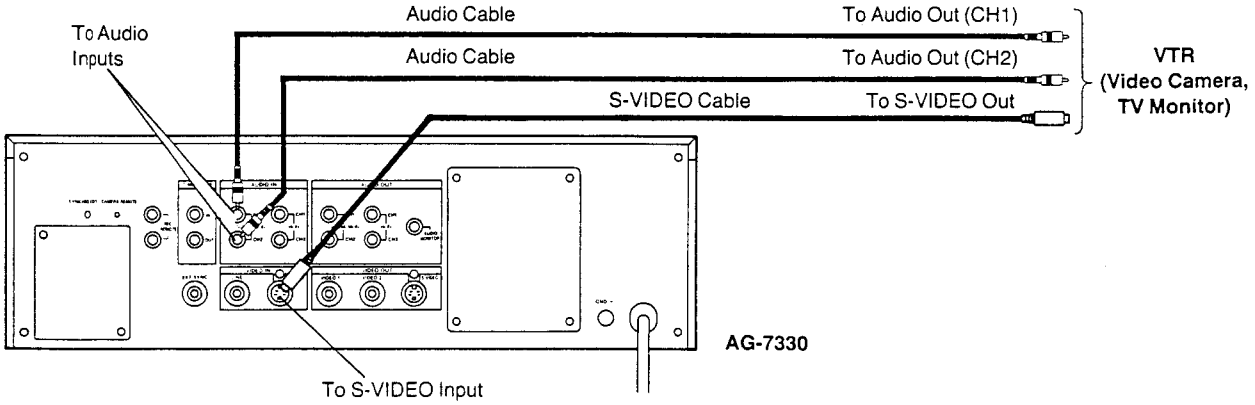
Note:
No matter which menu is displayed, when the SCREEN DISPLAY Button is pressed, the normal picture will appear.

RECORDING

Using the VTR and Audio/Video Cables



Using the VTR (with S-VIDEO Output Connector) and Audio/S-VIDEO Cables



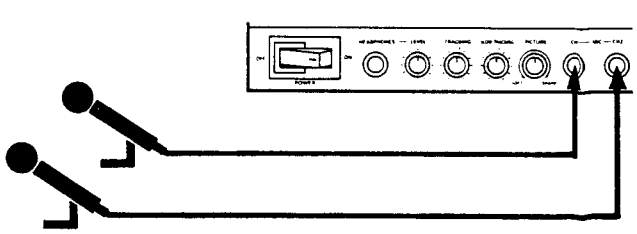
Switch Settings

- Turn VTR "ON".
- Set the Input Signal Selector to "LINE" or "S-VIDEO" depending on the connection shown above.
- Set the TV SYSTEM Selector to the desired recording mode (PAL or CCIR).

  Note: If REC and PLAY Buttons are pressed simultaneously when the TV SYSTEM Selector is set to "NTSC 4.43", the unit will automatically go into playback mode.
- Normally set the S-VHS Selector to the ON position. For details, see page 40.
- Set the EXT Timer Selector to "OFF".
- Insert a cassette tape. Make sure that the tab is in place.
- Clear the Tape memory.

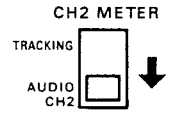
When connecting Microphones

Connect external microphones to the MIC jacks (¼" phone). When adjusting the levels, follow the Audio Level Adjustment on the next page.
If the microphone and the audio cable are connected at the same time, only the microphone sound will be recorded.

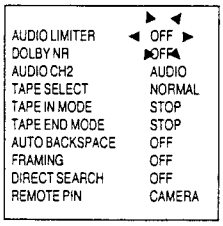


Audio Level Adjustment

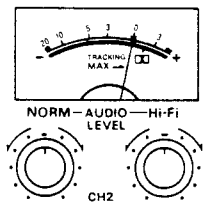
Adjust the audio recording level of CH1 and/or CH2.
When adjusting the audio CH2 level, set the CH2 METER Selector to "CH2", and adjust the recording level.



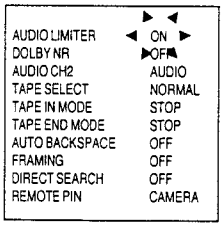
1) Set the Audio Limiter Selector to "OFF", in the ON-SCREEN mode. (When initially adjusting audio levels.)



2) Adjust the recording level so that the Audio Level Meter needle rarely deflects beyond 0 using the Audio Level Control.



3) After adjustment, set the Audio Limiter Selector to "ON".

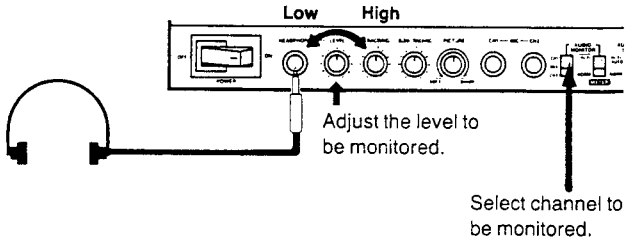


•Normally set the Audio Limiter Selector to "ON".

Note:
The Audio Limiter Selector controls both channels simultaneously.

Monitoring

If you wish to monitor the audio during recording, connect the headphone to the Headphone Jack and set the Audio Monitor Output Channel Selector to the desired position.

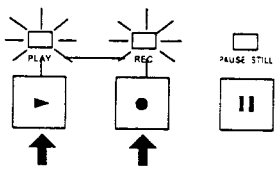


Setting of Audio Monitor Output Channel Selector	Headphone Jack
Channel 1	Audio from channel 1 only.
MIX	Each headphone hears separate channel. (Not mixed.) Channel 1...Left Channel 2...Right
Channel 2	Audio from channel 2 only.

Note:
When using the audio Output Jacks CH1/CH2, audio signals are not affected by the Audio Monitor Output Channel Selector setting.

Recording

Press the Record and Play Buttons simultaneously when you wish to start recording.



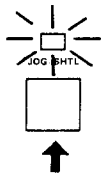
The recorder will go into the recording mode.

Note:
If Record and Play Buttons are pressed simultaneously when a tape with broken removable tabs inserted, the unit will go into playback mode.

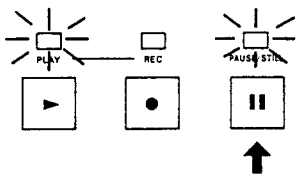
When the Pause Function is used in playback

For use when adding new material to a prerecorded section.

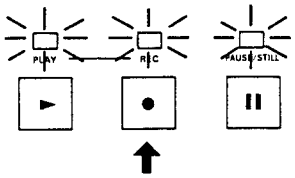
1) Press the JOG/SHTL Button and use Shuttle Ring to locate a point where you want to start recording.



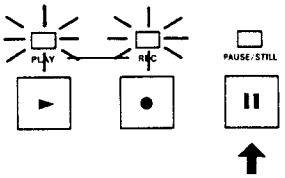
2) Press the Pause/Still Button or turn the Shuttle Ring to still at this point.



3) Press the Record Button.



4) Press the Pause/Still Button once again to release the pause mode. Recording will start.

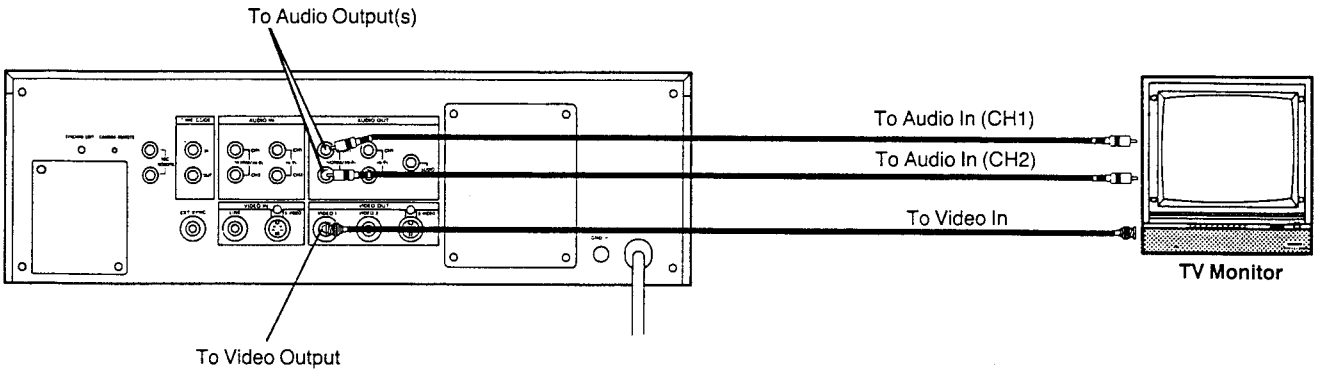


Notes:

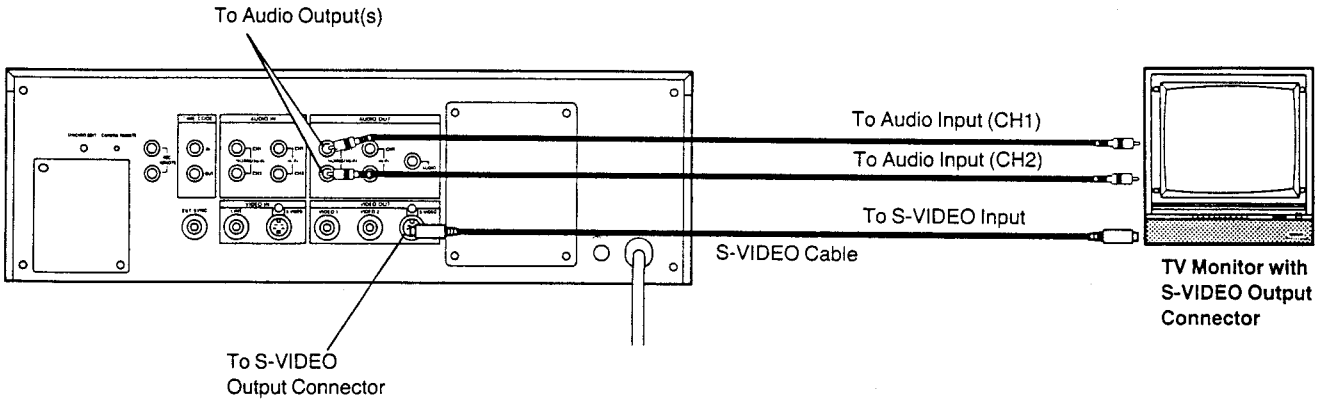
- If the Audio CH2 Selector (ON-SCREEN mode) is set to "TIME CODE", time code signals will be recorded or played back through audio CH2.
- When the Auto Back Space Selector has been set to "OFF", noise will appear at the paused portion during playback, but this is not a malfunction.

PLAYBACK

Using the VTR with a TV Monitor Connected via Audio/Video Cables



Using the VTR with a TV Monitor (with S-VIDEO Input Connector) Connected via S-VIDEO/Audio Cables



Switch Settings

VTR side

- Turn VTR "ON"
- Set the EXT TIMER Selector to "OFF"
- Select the TV SYSTEM Selector to the desired mode.
  - **PAL:** To playback PAL VHS/S-VHS tapes.
  - **CCIR:** To playback tapes recorded by CCIR system.
  - **NTSC 4.43:** To playback VHS/S-VHS tapes recorded by NTSC system. (When playing back S-VHS tapes, picture may distort.)
- Insert a recorded tape.

TV Monitor

- Turn power ON

Normal Playback

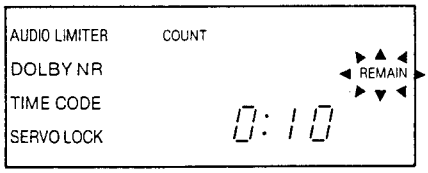
Press Play Button to start playback.

Notes:

- When playing back tapes in PAL or CCIR system, you can confirm the recording picture or sound by pressing the REC or the Audio Dubbing Button.
- Playback picture can be selected automatically between VHS and S-VHS mode. When the S-VHS tape recorded in both VHS and S-VHS modes is played back, it may be distorted at the position where the recording mode is changed from VHS to S-VHS, but this is not a malfunction.

Tape Remaining Time

Press the TAPE REMAIN Button during playback, the counter will display the remaining tape amount and the REMAIN Lamp will light up.

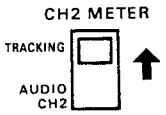


- When the TAPE REMAIN button is pressed again, the display will return to the normal counter.
- When switched to the display showing remaining tape amount, "⌐" may be displayed by the tape counter. The display "⌐" calculates the remaining tape amount.
- Depending on the condition of the used tape (i.e. non-standard tape), some deviation will occur in the display for the remaining tape amount.
- Select the TV System Selector to the PAL, CCIR or NTSC 4.43 position according to the tape used (See page 43).
- When using tapes with long time period as NV-E240, T160 or T140, be sure to set the Tape Selector (ON-SCREEN mode) to "E240" or "T160" (NTSC 4.43 system only). If this is not done, the time remaining will be in error.
- Tape remaining cannot be indicated correctly when C cassette is used.

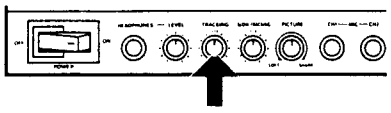
When Noise Appears

When noise appears during normal playback, adjust the Tracking Control for a normal image.

1) Set the CH2 METER Selector to "TRACKING".



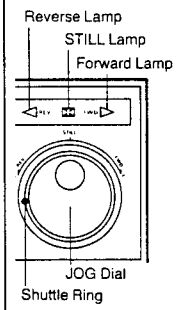
2) Adjust the Tracking Control so that the meter deflection is maximized.



3) When playback is completed, turn the Tracking Control to the "FIX" position.
   Note: TRACKING should be readjusted for every tape not made on this machine.

Search Operation

Press the JOG/SHTL Button.



JOG: 0~×1
Shuttle: ×1/25, ×1/9, ×1/5, ×1/2, ×1, ×2, ×5, ×9

The VTR is set to the jog or shuttle playback mode when the jog/shuttle button is pressed.

Jog

The jog mode is established when the Shuttle Ring is set to its centre (click-stop) position.

- When the Jog Dial (inner) is rotated, the tape speed will be changed depending on how fast the dial is rotated.
  The still picture mode results when the dial rotation is stopped. The tape speed can be changed up to 1 time the normal tape speed.

Shuttle

- When the Shuttle Ring (outer) is rotated, the tape speed will be changed depending on the position of the shuttle ring.
  The tape speed can be changed from 1/25 to 9 times the normal tape speed.

Note:

- The tape speed "×9" will change to "×7" in NTSC 4.43 system. Also noise will appear at ×7, ×5, ×2 tape speed.

When noise appears during **slow-motion playback**, turn the Slow Tracking Control clockwise or counterclockwise to reduce the noise. Noise may not reduce when playing back tapes recorded on another VTR.

Still-Frame

When the Pause/Still Button is pressed during playback, or when the Shuttle Ring is set to STILL position during search operation, the tape is temporarily stopped and a still picture will appear on the screen.

- A noise may appear on the still picture when the search mode is changed to the still mode, but this is not a malfunction.
- If jitter appears in the still or slow motion picture, adjust the V-Lock Control to minimize the jitter. For details, refer to page 40.

Automatic Pause/Still-Release Function

The Pause Mode is released after about 5 minutes in order to protect the video heads and/or the tape, and the VTR is set into the Stop Mode automatically.

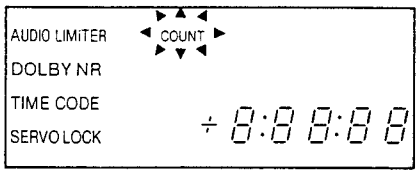
Manual Pause/Still-Release

- When Pause/Still Mode is activated by pressing Pause/Still Button, press the Pause/Still Button again or press the Play Button to release.
- When Pause/Still Mode is activated by pressing JOG/SHTL Button, press the JOG/SHTL or the PLAY Button to release.

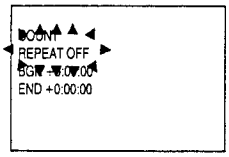
Normal Repeat Playback

If it is desired to watch a programme repeatedly, proceed as follows:

1. Press the MODE Button and select "COUNT" mode in the tape counter.



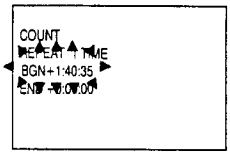
2. Press the SCREEN DISPLAY Button.
   The following menu will display on the screen.



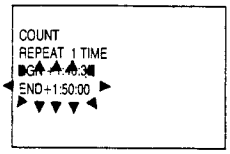
3. Press the DATA Button and select the repeating mode.
   1 TIME: One-time repeated playback mode. The "⮌" mark in the tape counter lights up.
   CONTINUE: Random repeated playback mode. The "⊂⊃" mark in the tape counter lights up.

   The indicator will change as follows.
   "OFF"→"1 TIME"→"CONTINUE"→"OFF"...

4. Press the DOWN Button. The "BGN" line indication will flash.
   Locate the beginning position of section you wish to repeat playback by using the DATA and SHIFT Buttons.



5. Press the DOWN Button. The "END" line indication will flash.
   Locate the end position of section you wish to repeat playback by using the DATA and SHIFT Buttons.



6. Press the FF or REW Button to access the repeated playback. When the tape reaches the BGN position, the playback will start automatically.
   - When desired to repeat playback from the tape beginning to the end, input the same data for BGN and END.

   Example: BGN+0:00:00 / END+0:00:00 or BGN+1:50:00 / END+1:50:00

Notes:

- Be sure that the "→▶" and "→▶I◀" indicators in the tape counter is not lighted, the Operation Selector is "LOCAL" and the Sensor REC Switch is "OFF".
- When the mode is changed to another (VISS or VASS), the repeat mode will automatically be "OFF".
- Press the SCREEN DISPLAY again.
  The normal picture will appear.
- When the BGN position is not found and reaches the tape beginning, the VTR will go into STOP mode when "1 TIME" is selected and PLAY mode when "CONTINUE" is selected. When reaching the tape end, the VTR will go into REW mode.

"0:00:00" Position Search

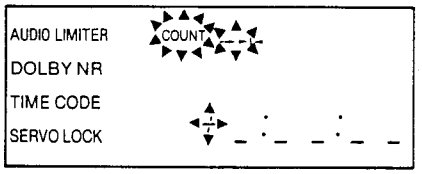
This function is used when there is a place during recording or playback to which you want to return in playback once again.

1. Press the MODE Button and select "COUNT" mode in the tape counter.
2. Press the SEARCH Button to light the "→000" indicator.
   When the Menu display remains on the screen, this step cannot be activated. Clear the Menu display by pressing the Screen Display Button.
3. Press the REW or FF Button after recording or playback has finished. The tape will be rewound or fast forwarded to near "0:00:00" position, and then stop.

Note:
This mode will not function when the VTR is in the repeat playback mode.

Counter Address Search Function

1. Press the MODE Button until the "COUNT" mode indicator lights in the tape counter.
2. Press the Search Button to light the "→▶" indication in the tape counter.



   When the Menu display remains on the screen, this step cannot be activated. Clear the Menu display by pressing the Screen Display Button.
3. Press the DATA and SHIFT Buttons to select the desired address.
4. When setting is completed, press the SHIFT Button.
5. Press the REW or FF Button to start the search function. When the preset address signal is reached, the VTR will go into the play mode.

When you want to obtain the still picture at the preset address position, press the SEARCH Button until the "→▶I◀" mode indicator lights in step 2.

To abort the Counter Search function midway, press the SEARCH Button. The "→▶" indicator lights off.

Note:
When the VTR is set to the repeat playback mode, perform this function completely. If this function is not performed while setting has been finished, repeat playback cannot be activated even when the PLAY Button is pressed.

VHS INDEX SEARCH SYSTEM (VISS)

It is possible to locate the beginning of a desired programme in forward or reverse direction in the Fast Forward or Rewind mode by skipping up to 99 index signals.
To be able to use the VHS Index Search function, index signals must be recorded on the tape.

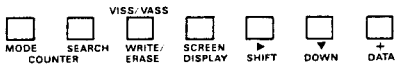
- When recording index signals, space them so that the interval between two signals is more than 2 minutes in normal playback time.
- In the following cases, the VHS Index Search function may not work correctly:
  - If the tape has portions without any recording.
  - If a recording was replaced by another recording.

Recording Index Signals

Index signals can be recorded during recording or on already recorded tapes.

Settings: • Press the MODE Button to select the VISS mode.
• Press th SCREEN DISPLAY Button to display the VISS WRITE menu.

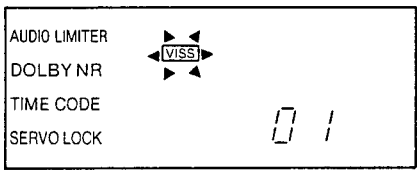
- An index signal is automatically recorded at the position where the recording is started by pressing the Record Button.



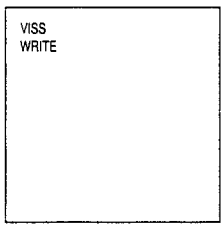
Use the buttons above and perform the following operations by ON-SCREEN mode and the tape counter.

To Record Index Signals during Recording

1. Press the MODE Button to light the VISS mode indicator in the tape counter.



2. Press the SCREEN DISPLAY Button to display the VISS WRITE mode.



Note:
Be sure that the " →► " and " →►I◄ " indicator in the tape counter is not lighted, the OPERATION Selector at "LOCAL" and the SENSOR REC Switch at "OFF".

3. Press the WRITE/ERASE Button at a point that you may want to locate again later using the VHS Index Search function.
Notes:
- Be sure that the TV system is PAL or CCIR.
- Do not insert tapes with broken removable tabs.

The VISS mode indicator in the tape counter flashes.
The VISS mode indicator stops flashing when the index signal has been recorded.

Notes:
- If the operation step 3 is performed while the VTR is in the recording pause mode, the pause mode will be canceled, the recording will restart and the index signal will be recorded.
- Press the SCREEN DISPLAY Button for normal picture.

To Record Index Signals on a Recorded Tape

Play back the tape to locate a point that you may want to locate again later using the VHS Index Search function, and put the VTR at that point in the still playback mode.

1. Put the VTR in the pause/still mode where you desire to locate again later.
2. Press the MODE Button and light the VISS mode indicator in the tape counter.
3. Press the SCREEN DISPLAY Button and display the VISS WRITE mode.
4. Press the WRITE/ERASE Button.
The VISS mode indicator flashes.
Playback starts and the VISS mode indicator stops flashing after the index signal recording has been made.

While an Index Signal is Being Recorded
- The VISS mode indicator flashes for about 3 seconds when an index signal is recorded during recording and for about 8 seconds when an index signal is recorded on an already recorded tape.
- While recording an index signal on a recorded tape, no other operation can be performed and the sound from the normal (mono) sound track will be muted while the VISS mode Indicator is flashing.

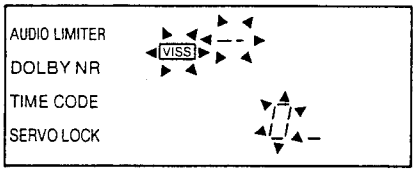
If Index Signal Cannot Be Recorded
It is not possible to record index signal on a tape which had the tab removed. To be able to record these signals, cover the tab hole with two layers of adhesive tape. After the signals are recorded, strip off the adhesive tape to prevent accidental erasure of the recording.
- If the CTL is not recorded correctly during playback, VISS mode indicator flashes about 30 sec and the VTR will stop automatically. If this occurs, turn the power once again.

VHS Index Search Function

•VISS SEARCH PLAY mode

1. Press the MODE Button to light the VISS mode indicator in the tape counter.

2. Press the SEARCH Button to light the "→►" indicator in the tape counter.



When the Menu display remains on the screen, this step cannot be activated. Clear the Menu display by pressing the Screen Display Button.

3. Press the DATA Button and the SHIFT Button to select the desired Index. The number is shown in the tape counter (up to 99).

Example: When setting number "04"

1) Press the SHIFT Button.
The tens digit remains zero and the unit's place will light up.

2) Press the DATA Button four times till "4" appears.

Example: When setting number "13".

1) Press the DATA Button once. The tens digit will display "1".

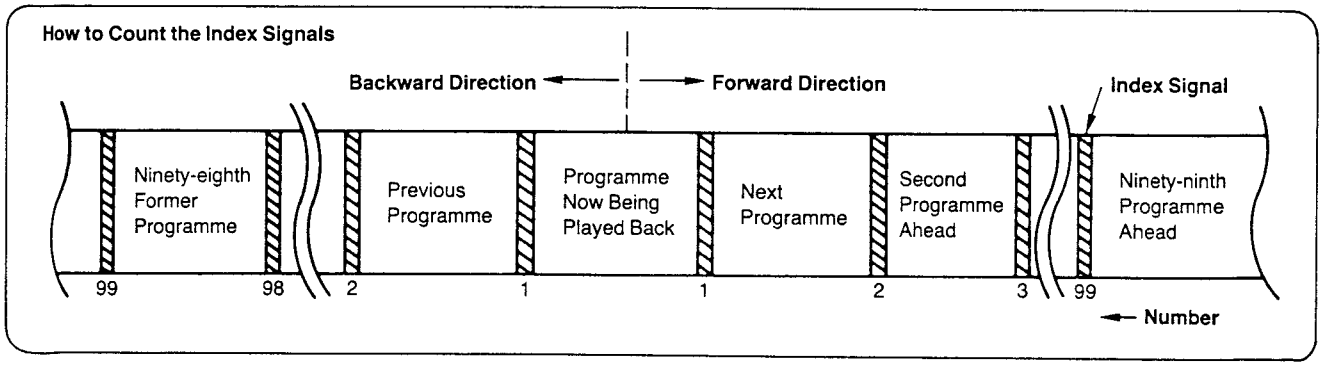
2) Press the SHIFT Button. The unit's place will light up.

3) Press the DATA Button repeatedly till "3" appears.

4. When setting completes, press the SHIFT Button.

5. Press the REW or FF Button to start the VHS Index Search function.

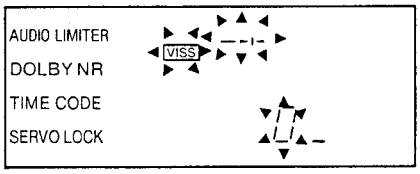
- •Every time an index signal is skipped the number in the tape counter decreases by one.
- •When the preset address is reached, the normal playback will start.
- •To abort the Index Search function midway, press the SEARCH Button and light off the "→►" indicator.



•VISS SEARCH PAUSE mode

1. Press the MODE Button to light the VISS mode indicator in the tape counter.

2. Press the SEARCH Button to light the " →▶I◀ " indicator in the tape counter.



When the Menu display remains on the screen, this step cannot be activated. Clear the Menu display by pressing the Screen Display Button.

3. Use the DATA and SHIFT Buttons to select the desired Index (up to 99).
The number is shown on the tape counter.
(Index setting is to be done the same way as "VISS SEARCH PLAY mode".)

4. When setting is completed, press the SHIFT Button.

5. Press the REW or FF Button to start the VHS Index Search function.

- Every time an index signal is skipped the number in the tape counter decreases by one.
- When the preset index signal is reached, the VTR will go into pause still mode.
- To abort the Index Search function midway, press the SEARCH Button and light off the " →▶I◀ " indicator.

If the Index Search function is started extremely close to the beginning of the next programme or from the beginning of the tape, the first Index may not be counted.

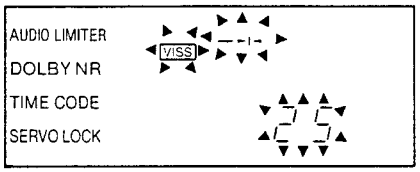
When the VHS Index Search Function is Operated from the Still Playback Mode
The VTR will stop the tape in the still playback mode when the designated tape position is reached.

Deleting Index Signals

It is possible to delete unnecessary index signals.
Locate an index signal you want to delete and then press the ERASE Button.

Example: When deleting the index signal "25".

1. Follow the operations 1~5 of "VISS SEARCH PAUSE mode."
   1) Light the VISS mode indicator by the MODE Button and the " →▶I◀ " indicator by the SEARCH Button in the tape counter.
   When the Menu display remains on the screen, this step cannot be activated. Clear the Menu display by pressing the Screen Display Button.
   2) Press the DATA Button till "2" indicates in the tape counter.
   Press the SHIFT Button.
   3) Press the DATA Button repeatedly till "5" indicates in the tape counter.
   Press the SHIFT Button.



   4) Press the REW or FF Button and put the VTR in the pause still mode at the desired index signal.

2. Press the WRITE/ERASE Button.
The VTR will go into playback mode and deleting starts.

When the WRITE/ERASE Button is Pressed
Playback starts.
When the signal to be deleted is reached, the VISS mode indicator starts flashing. While this indicator is flashing (for about 15 seconds), the deleting operation is being performed. When the deleting is completed, the normal playback continues.
- While the VISS mode indicator is flashing, no other operation can be performed, and the sound from the normal (mono) sound track will be muted.
- Be sure that the TV system is PAL or CCIR.
- Do not insert tapes with broken removable tabs.

When the WRITE/ERASE Button is Kept Pressed
While the WRITE/ERASE Button is kept pressed, the VISS mode Indicator is flashing, indicating the next index signal can now be deleted.

VHS ADDRESS SEARCH SYSTEM (VASS)

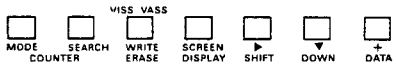
Locate the beginning of a desired programme by selecting the number of the address signal recorded on the tape at that position. To be able to use the VHS Address Search function, address signals must be recorded on the tape.

- When recording address signals, space them so that the interval between two signals is more than 2 minutes in normal playback time.

Recording Address Signals

Address signals (numbered search signals) can be recorded during recording or on already recorded tapes.
A desired 4-digit number (0000-9999) can be assigned to each address signal.

- For optimum convenience when later locating desired programmes, write down the numbers assigned to the recorded address signals on the cassette label.

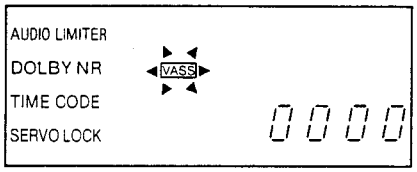


Use the buttons above and perform the following operations by ON-SCREEN mode and the tape counter.

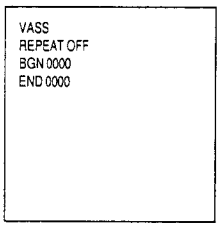
To Record Address Signals during Recording

Example: When recording the address signal "1964".

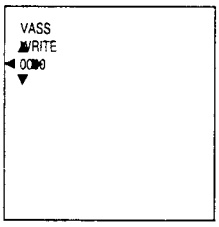
1. Press the MODE Button and light the VASS mode indicator in the tape counter.



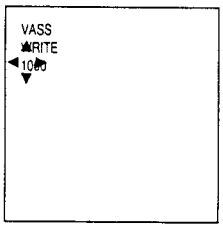
2. Press the SCREEN DISPLAY Button.



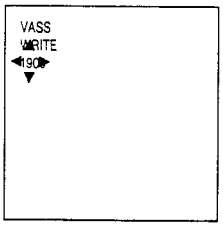
3. Press the SHIFT Button and display the VASS WRITE menu.
4. Press the DOWN Button so that the digit will flash.



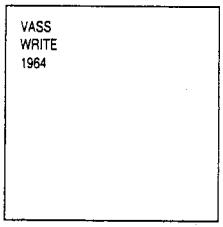
5. Press the DATA Button to display "1". Press the SHIFT Button.



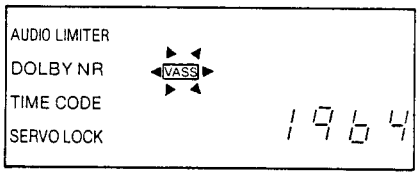
6. Press the DATA Button repeatedly to display "9". Press the SHIFT Button.



7. Continuously set "6" and "4" with the DATA and SHIFT Buttons. When completed, press the SHIFT Button.



8. Press the WRITE/ERASE Button at a point that you may want to locate again later using the VHS Address Search function. Recording starts and the VASS mode indicator in the tape counter flashes.



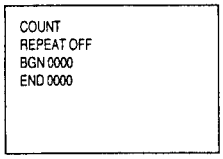
If the operation step 8 is performed while the VTR is in the recording pause mode, the pause mode will be canceled, the recording will restart and the address signal will be recorded.

To Record Address Signals on a Recorded Tape

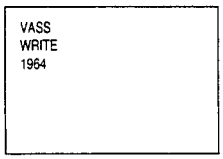
Play back the tape to locate a point that you may want to locate again later using the VHS Address Search function, and put the VTR in the still playback mode.

1. Put the VTR in the pause still mode where you desire to locate again later.

2. Press the MODE Button and light the VASS mode indicator in the tape counter.
3. Press the SCREEN DISPLAY Button.



4. Press the SHIFT Button and display the VASS WRITE menu.
5. Press the DOWN Button so that the digit will flash.
6. Use the DATA and SHIFT Buttons to select the desired address (0000–9999)



7. Press the WRITE/ERASE Button.
   The VASS mode indicator flashes.
   Playback starts and the VASS mode indicator stops flashing after the address signal recording has been made.
   - Be sure that the TV system is PAL or CCIR.
   - Do not insert tapes with broken removable tabs.

While an Address Signal is Being Recorded

- The VASS mode indicator flashes for about 6 seconds when an address signal is recorded during recording and for about 8 seconds when an address signal is recorded on an already recorded tape.
- While recording an address signal on a recorded tape, no other operation can be performed and the sound from the normal (mono) sound track will be muted while the VASS mode Indicator is flashing.

If Address Signal Cannot be Recorded

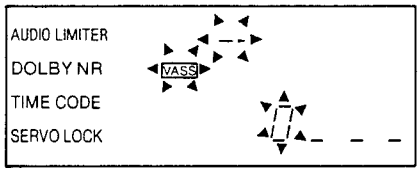
It is not possible to record address signal on a tape which had the tab removed. To be able to record these signals, cover the tab hole with two layers of adhesive tape. After the signals are recorded, strip off the adhesive tape to prevent accidental erasure of the recording.

- If the CTL is not recorded correctly during playback, VASS mode indicator flashes about 30 secondes and the VTR will stop automatically. If this occurs, turn the power once again.

VHS Address Search Function

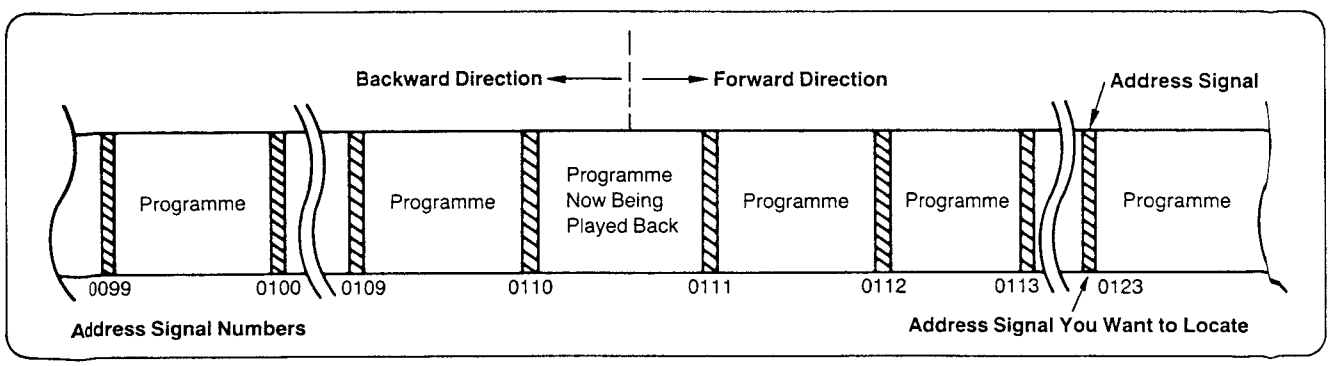
•VASS SEARCH PLAY mode

1. Press the MODE Button to light the VASS mode indicator in the tape counter.
2. Press the SEARCH Button to light the "→►" indication in the tape counter.



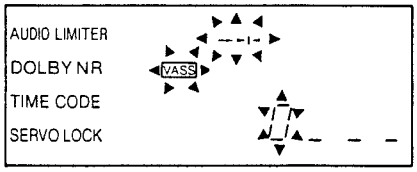
When the Menu display remains on the screen, this step cannot be activated. Clear the Menu display by pressing the Screen Display Button.

3. Input the number of the address signal you want to locate with the DATA and SHIFT Buttons.
4. When setting is completed, press the SHIFT Button.
5. Press the REW or FF Button to start the VHS Address Search function.
   - The counter will indicate "0000" and each time an address signal is found, its number will be displayed.
   - To abort the VHS Address Search function midway, press the SEARCH Button and light off the "→►" indicator.
   - When preset address signal is reached, the VTR will go into play mode.



•VASS SEARCH PAUSE mode

1. Press the MODE Button to light the VASS mode indicator in the tape counter.
2. Pres the SEARCH Button to light the "→▶❙◀" indicator in the tape counter.



When the Menu display remains on the screen, this step cannot be activated. Clear the Menu display by pressing the Screen Display Button.

3. Use the DATA and SHIFT Buttons to select the desired address.
4. When setting is completed, press the SHIFT Button.
5. Press the REW or FF Button to start the VHS Address Search function.
   When the preset address signal is reached, the VTR will go into pause still mode.

•The counter will indicate "0000" and each time an address signal is found, its number will be displayed.
•To abort the VHS Address Search function midway, press the SEARCH Button and light off the " →▶❙◀" indicator.

When the VHS Address Search Function is Operated from the Still Playback Mode.
The VTR will stop the tape in the still playback mode when the designated tape position is reached.

If You Want to Know the Number of an Address Signal Recorded on the Tape

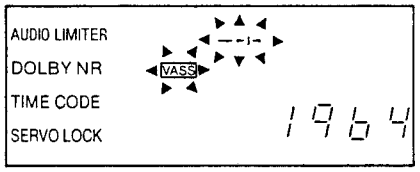
Press the PLAY, FF or REW Button during VASS mode. Each time an address signal is found, its number will be displayed in the tape counter.

When the Preset Address Signal is not Found

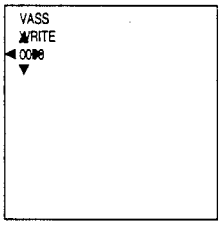
When the tape reaches its end during fast forward, the VTR will rewind to its beginning if you set the TAPE END MODE Selector (ON-SCREEN mode) to "REW".

To Change the Number of an Address Signal

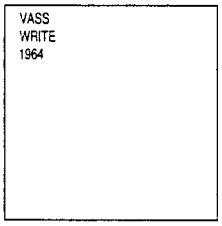
1. Follow the steps 1~5 of "VASS SEARCH PAUSE mode" and set the VTR into pause still mode at the address signal which you desire to change.



2. Clear the search mode.
3. Press the SCREEN DISPLAY Button.
4. Press the SHIFT Button and display the VASS WRITE menu.
5. Press the DOWN Button so that the digit will flash.



6. Input the desired new number with the DATA and SHIFT Buttons.



7. Press the WRITE/ERASE Button. The VASS mode indicator will flash.
   The VTR will go into playback mode and renumbering starts.

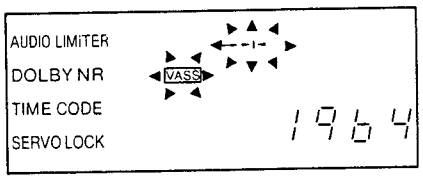
•The VASS mode indicator will stop flashing after about 15 seconds and the VTR will go into playback mode when the number is changed. The sound from the normal (mono) sound track will be muted.

Deleting Address Signals

It is possible to delete unnecessary address signals. Locate an address signal you want to delete and press the WRITE/ERASE Button.

Example: When deleting the address signal "1964".

1. Follow the operations 1~5 of "VASS SEARCH PAUSE mode".
   1) Light the VASS mode indicator by the MODE Button and the " →▶I◀ " indicator by the SEARCH Button in the tape counter.
      When the Menu display remains on the screen, this step cannot be activated. Clear the Menu display by pressing the Screen Display Button.
   2) Use the DATA and SHIFT Buttons and display "1964" in the tape counter.



   3) Press the REW or FF Button and put the VTR in the pause still mode at the desired address signal.

2. Press the WRITE/ERASE Button.
   The VTR will go into playback mode and deleting starts.

When the WRITE/ERASE Button is Pressed

Playback starts.
When the signal to be deleted is reached, the VASS mode indicator starts flashing. While this indicator is flashing (for about 15 seconds), the deleting operation is being performed. When the deleting is completed, the normal playback continues.

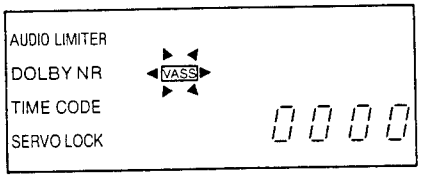
- While the VASS mode indicator is flashing, no other operation can be performed, and the sound from the normal (mono) sound track will be muted.

When the WRITE/ERASE Button is Kept Pressed

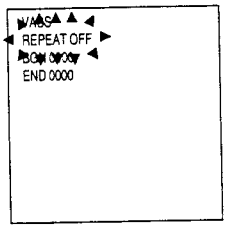
While the WRITE/ERASE Button is kept pressed, the VASS mode address indicator is flashing, indicating the next signal can now be deleted.

VASS Repeat Playback

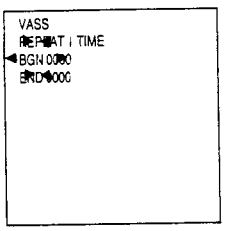
1. Press the MODE Button to select VASS mode.



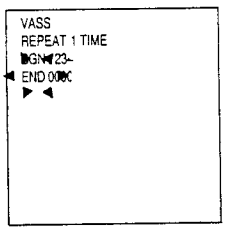
2. Press the SCREEN DISPLAY Button.



3. Press the DATA Button and select "1 TIME" or "CONTINUE".
   Each time the DATA Button is pressed, the indicator will change "OFF"→"1 TIME"→"CONTINUE".
4. Press the DOWN Button.
   The "BGN" line indicator will flash.
   Use the DATA and SHIFT Buttons and set the desired beginning address signal.



5. Press the DOWN Button.
   The "END" line indicator will flash.
   Use the DATA and SHIFT Buttons and set the desired end address signal.



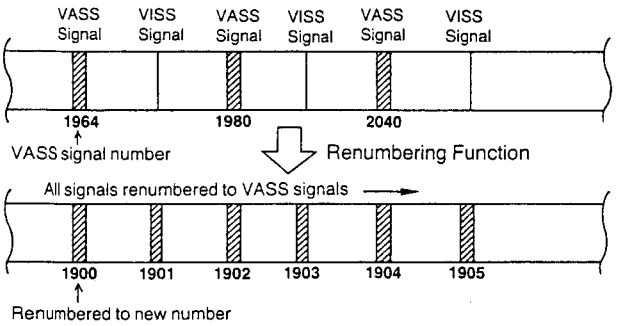
6. Press the REW or FF Button to start the VASS repeat playback function.

Note:
When the mode is set to "COUNT", VASS repeat mode will automatically set to "OFF".

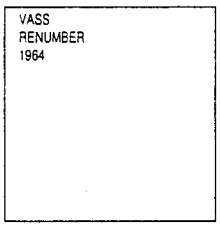
VASS Renumbering Function

This VTR has a renumbering function that can automatically change index and address signals to address signals with serial numbers starting with any desired number.

Example: Renumbering index and address signals starting with the address signal "1964" to address signals starting with the number "1900".



1. Locate the position where you want to start the renumbering function.
   Select the address signal "1964" and locate it.
2. Press the REW Button and rewind the tape from the "1964" position for 2~3 seconds.
3. Put the VTR in the still playback mode.
4. Press the SCREEN DISPLAY Button, then the SHIFT Button twice to display the VASS renumbering menu.



Note:
The displayed address signal is the same as the VASS WRITE menu.

5. Press the DOWN Button. "1964" will light up. Input "1900" with the DATA and the SHIFT Buttons.
6. Press the WRITE/ERASE Button.
   The VTR will start the renumbering function with the displayed address signal as the renumbering start address signal.

Notes:
- To abort the renumbering function midway, press the Stop Button.
- When the tape reaches the end, the tape will automatically follow the preset tape end mode (ON-SCREEN mode).

When the Renumbering Starts
The tape will automatically be fast-forwarded and the signals will automatically be changed to address signals.
- While the signals are being changed to address signals, no other operation can e performed and the sound from the normal (mono) sound track will be muted.

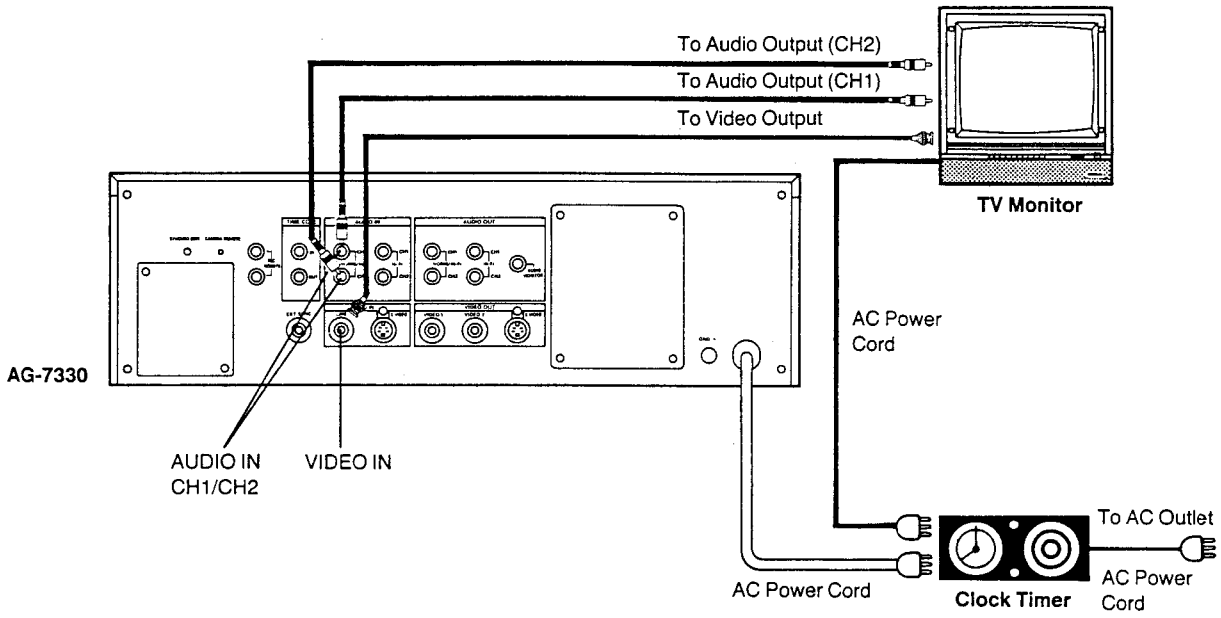
To Start Renumbering from the Beginning of the Tape

Put the VTR at the beginning of the tape in the still playback mode, and perform the operation steps 4~5.

TIMER RECORDING/PLAYBACK

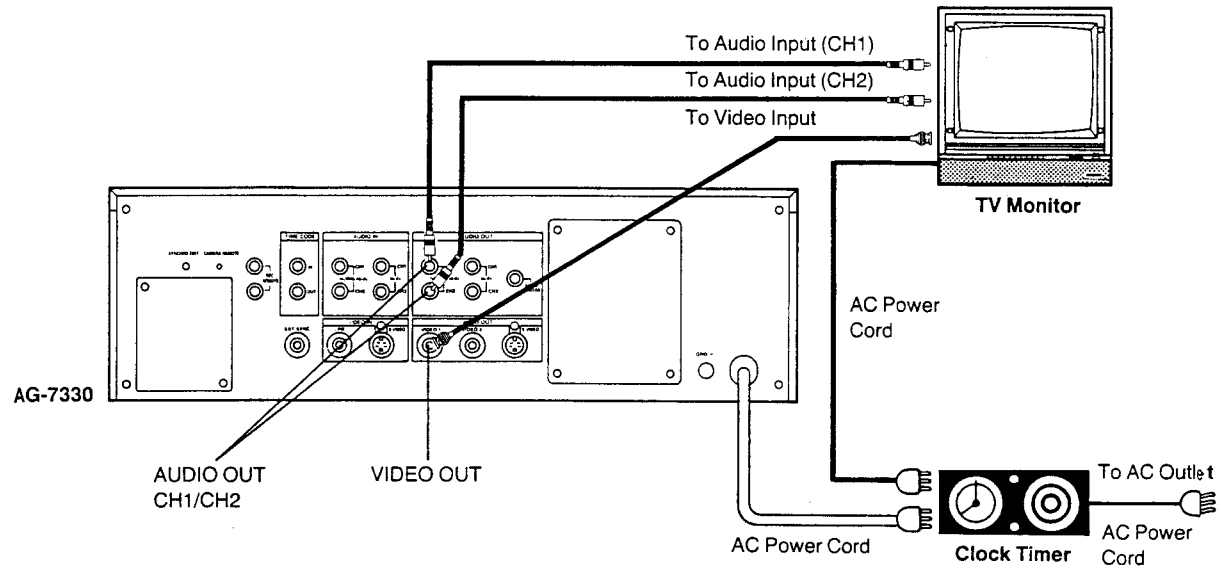
•Timer Recording

Timer Recording Using a TV Monitor Connected via Audio/Video Cables

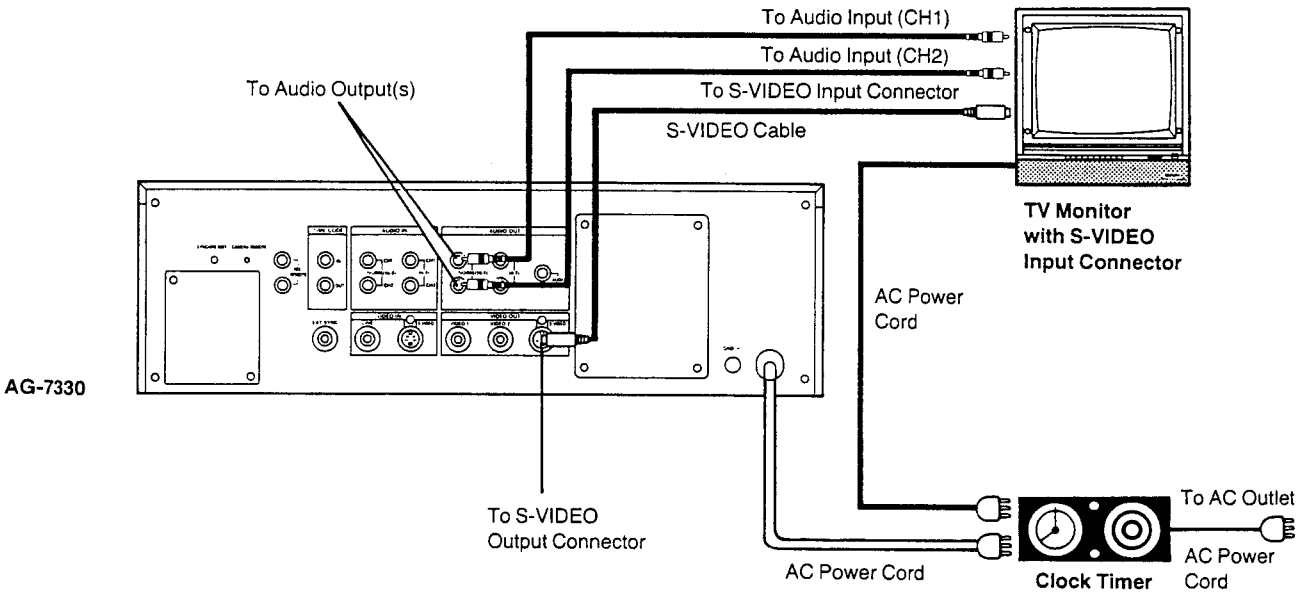


•Timer Playback

Timer Playback Using a TV Monitor Connected via Audio/Video Cables



Timer Playback Using a TV Monitor Connected via S-VIDEO/Audio Cables



Switch Settings

- Turn VTR "ON".
- Set the EXT Timer Selector to "REC" or "PLAY".
- Set the Input Mode Selector to the desired position ("LINE" or "S-VIDEO".)
- Insert a cassette tape.
- Clear the Tape Memory.

Timer

- Turn the Power "ON".
- Set the timer to the desired time.
  (Refer to the operating instructions for the timer.)
  The timer should be purchased locally.

TV Monitor

Make sure the power is turned "ON".

Adjustment of the Audio Level

Adjust audio CH1 and/or CH2 recording level as described on page 17 section "Audio Level Adjustment".

Note

It takes about one minute to load the tape inside the VTR. Therefore, set the timer pre-set time at least one minute before the recording start time.

When the Preset times Comes

At the preset time, the power will be automatically turned "ON" and the tape will start moving.
At the preset turn "OFF" time, the tape will remain loaded on the cylinder of the unit. See NOTE below.

- **When the tape reaches its end**
  VTR will go into the tape end function mode selected at the TAPE END MODE Selector.
  See page 13.

- **To stop timer recording**
  If desired to stop the timer recording/playback, press the Stop Button.

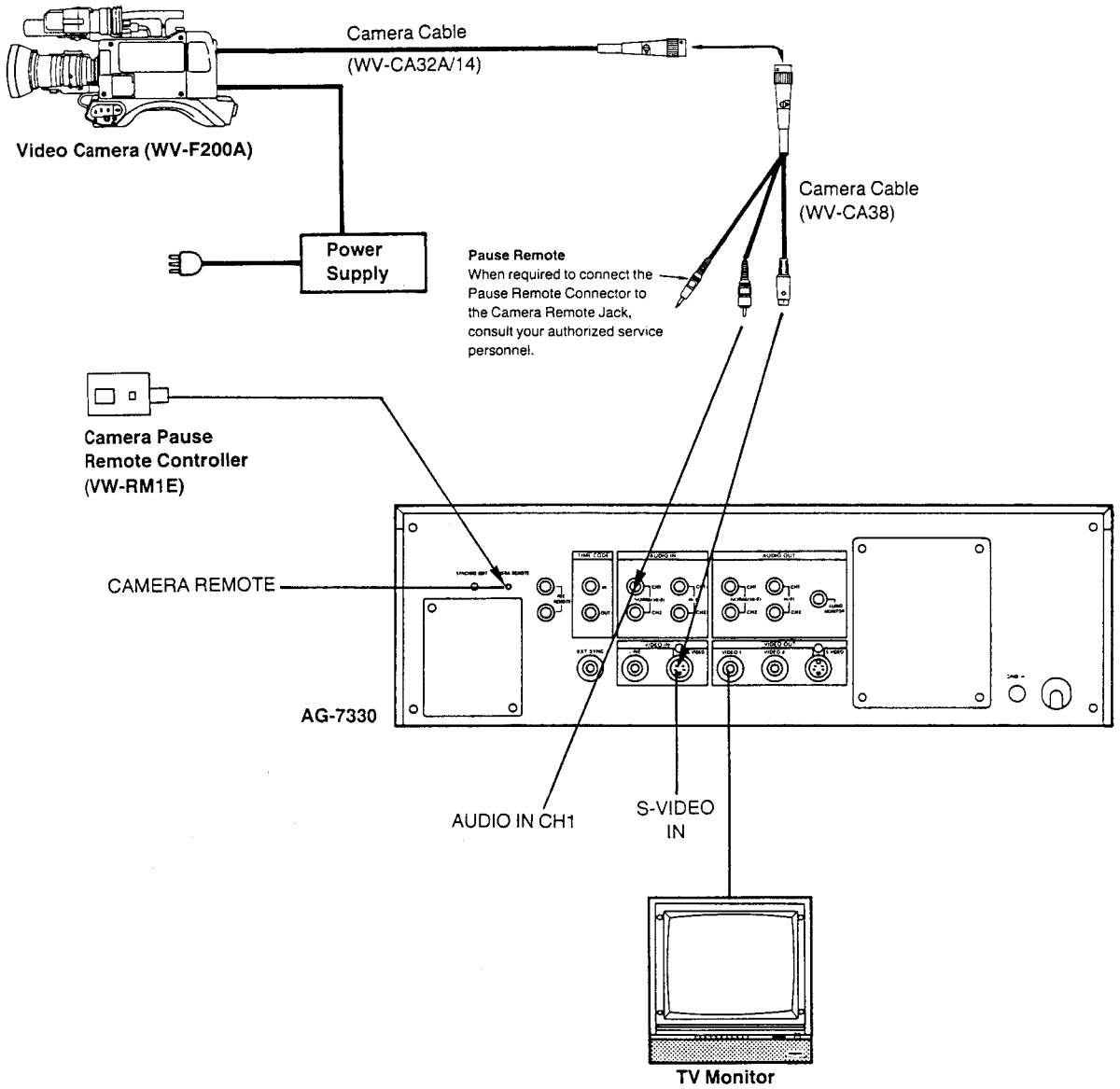
Note:

- If the power is turned "OFF" while the tape is moving during timer recording/playback, the tape will remain loaded. When the power is resumed, the tape will be unloaded and then the unit will go into the recording/playback mode.

CAMERA RECORDING

The AG-7330 may be used with an optional video camera. The recorder was designed to be used with Camera Pause Remote Controller (VW-RM1E) and the video camera (WV-F200A).
The connection diagram is shown below, but for best results, please refer to the operating instructions of the VW-RM1E, WV-F200A or the camera you are using.

Connections



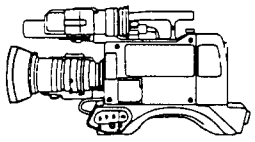
Note:
The REC lamp of the Camera Pause Remote Controller (VW-RM1E) will not light up even in the recording mode.

Switch Settings

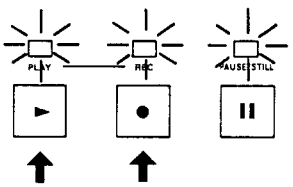
- Turn TV Monitor "ON".
- Set the Input Selector to "LINE".
- Set the Sync Mode Selector to "NORM".
- Set the EXT Timer Selector to "OFF".
- Insert a cassette. Make sure that the tab is in place.
- Clear the Tape Memory.

Operations

1) Make the necessary adjustments on the camera. Refer to the Operating Instructions of the camera you are using on how to handle the camera and how to start and stop camera recording.



2) Push Record Button together with the Play Button. The indicator lamps for REC, PLAY and PAUSE/STILL should light up. The unit go into the standby mode.

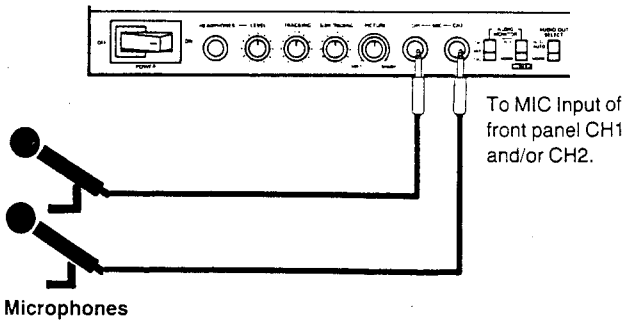


Audio Level Adjustment

Adjust audio CH1 and/or CH2 recording level as described on page 17 section "Audio Level Adjustment".

Sound Recording with Microphones

If you wish to record sound with microphones, connect the microphones to MIC Jacks (CH1 and 2). If the microphone and the audio cable are connected at the same time, only the microphone sound will be recorded.

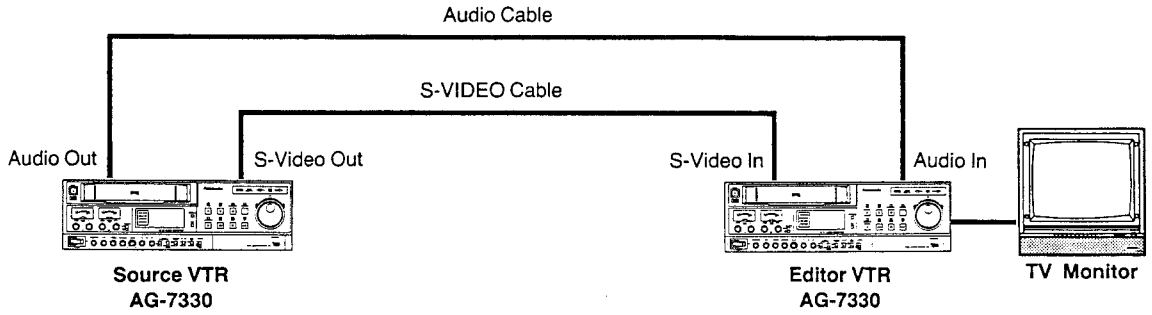


DUBBING

Note: You are cautioned that copying and/or exchanging copyrighted television programming may be copyright infringement.

Dubbing with S-VIDEO Connector

When you wish to duplicate a S-VHS tape, two AG-7330 VTRs can be used for duplicating tapes (dubbing).
Connect the 4P S-VIDEO cable from the source side S-VIDEO Output Connector to the editor side S-VIDEO Input Connector.



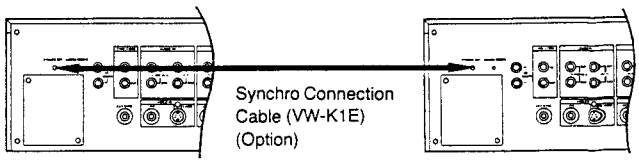
Switch Settings

- Turn both units "ON".
- Turn TV Monitor "ON".
- Set the EXT Timer Selector to "OFF".
- Clear the Tape Memory.
- Set the Sync Mode Selector as follows:
  Editor (Recording) VTR; "NORM",
  Source (Playback) VTR; "INT".
- Insert a cassette tape. Make sure that the tab is in place on the editor VTR.
- Set the Image Selector on the editor/source VTR to "EDIT".
- Set the Input Signal Selector on the editor VTR to "S-VIDEO".

Operations

1) Place the recorded cassette in the source VTR and a blank cassette in the editor VTR.
2) Push the Play Button on the source VTR.
3) Push the Record Button together with the Play Button to set the editor VTR.
4) Push the Stop Button to stop the dubbing.

Control Dubbing

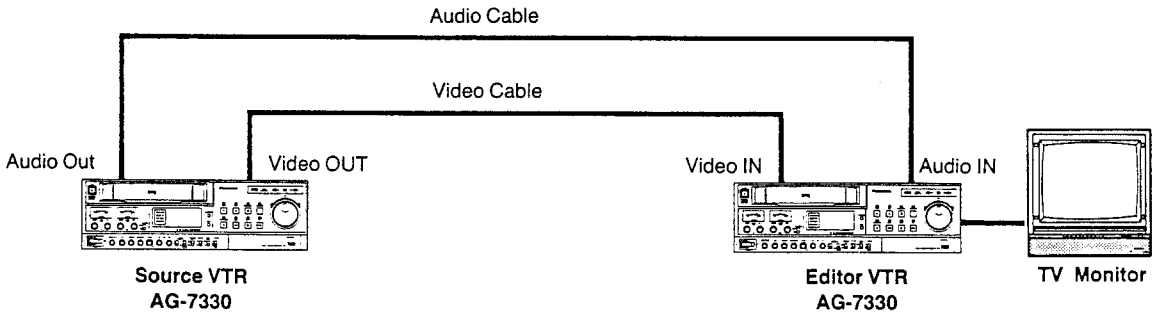


When an AG-7330 is used as both recording and playback VTR, the connection shown above makes possible dubbing of index signals, too.
The operation is the same as for ordinary dubbing.

Note:
Be sure to set the mode selector in the tape counter to VISS or VASS when dubbing index or address signals.

Dubbing with composite (VIDEO IN/OUT) Connector

When you wish to duplicate a tape, two AG-7330 VTRs can be used for duplicating tapes (dubbing).



Switch Settings

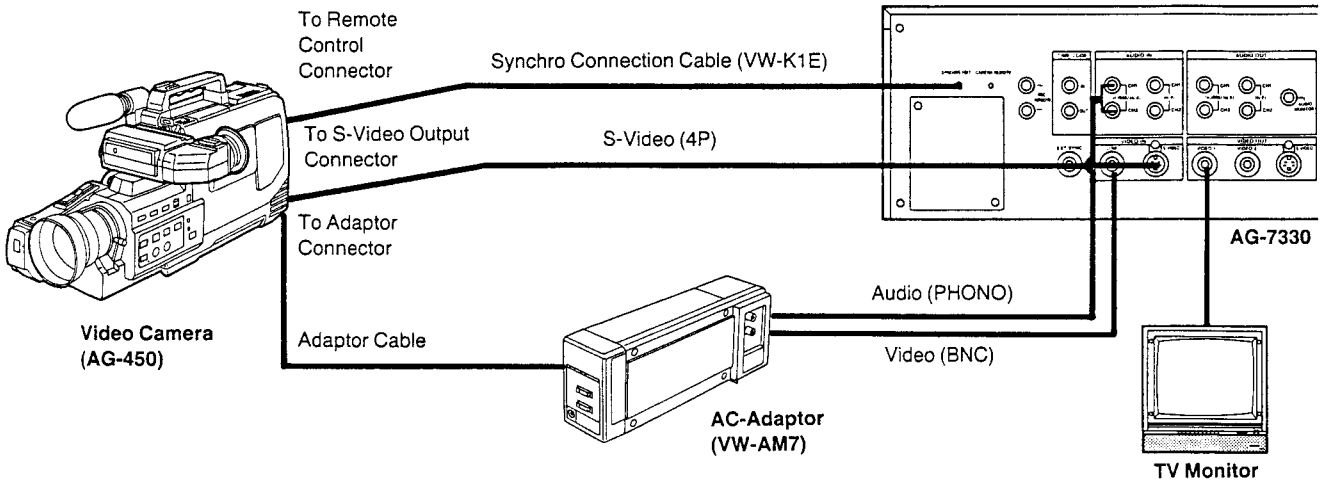
- Set Input Signal Selector on the editor VTR to "LINE".
- Turn both units "ON".
- Turn TV Monitor "ON".
- Set the Image Selector on the editor/source VTR to "EDIT".
- Turn the TV "ON" and select the same channel as the editor VTR (unused broadcasting channel).
- Set the EXT Timer Selector to "OFF".
- Set the Sync Mode Selector as follows:
  Editor (Recording) VTR; "NORM",
  Source (Playback) VTR; "INT".
- Insert a cassette tape. Make sure that the tab is in place on the editor VTR.
- Clear the Tape Memory.

Operations

1) Place the recorded cassette in the source VTR and a blank cassette in the editor VTR.
2) Push the Play Button on the source VTR.
3) Push the Record Button together with the Play Button to set the editor VTR.
4) Push the Stop Button to stop the dubbing.

Synchro Edit Function

Connecting the AG-7330 by synchro cable to a video camera (AG-450) or VTR (AG-7450 with AG-S745) equipped with a Synchro Edit Function makes it possible to synchronize the editing start and stop of both units.
The playback start and stop of the video camera will be synchronized with the recording start and stop of this VTR.



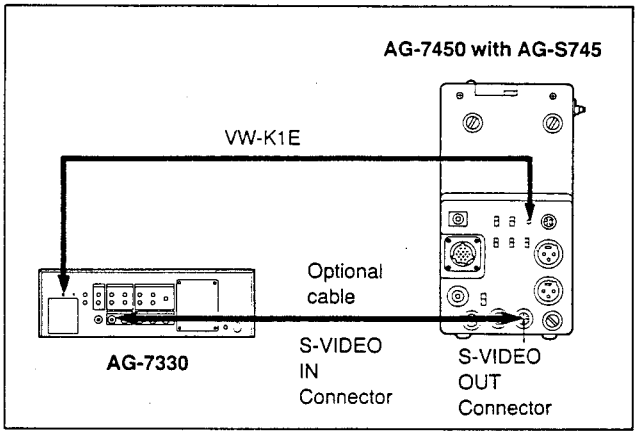
Connecting to AG-450, video camera

Preparation

- Set the Framing Selector to "OFF" and the Auto Back Space Selector to "ON" by ON-SCREEN mode.
- Make the necessary connections as shown in the connection diagram.
- Set the Edit Switch of AG-450 to "ON" and the Image Selector of this VTR to "EDIT".

1. Put the VTR in the recording pause mode.
2. Put the video camera in the still playback mode at the point where you want to start editing.
3. Press the Pause/Still Button on the VTR. The video camera changes over to the playback mode and the dubbing will start automatically.

Connecting to AG-7450



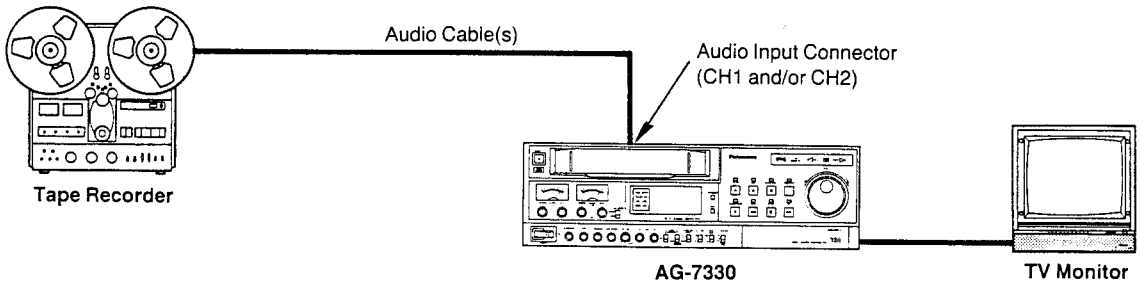
1. Set the SYNCHRO EDIT Switch of AG-S745 to "ON".
2. Press the PLAY and PAUSE Buttons of AG-7450.
3. Press the REC, PLAY and PAUSE/STILL Buttons on the VTR.
4. Press the Pause/Still Button on the VTR. The video camera changes over to the playback mode and the dubbing will start automatically.
5. When the PAUSE/STILL Button on the VTR is pressed again, the VTR will go into REC PAUSE and AG-7450 will go into still mode.

When editing is completed, press the STOP Button of AG-7330 first and then the video camera's or AG-7450's.

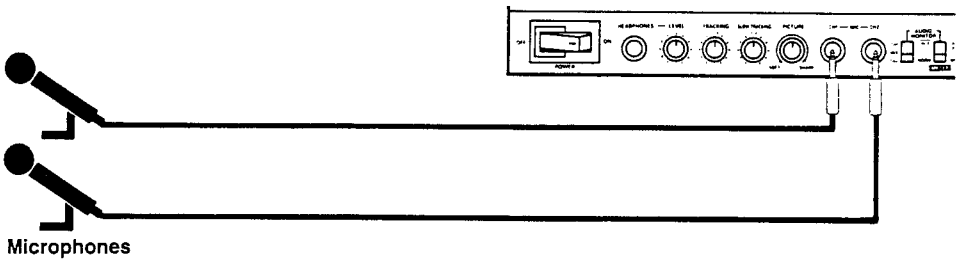
AUDIO DUBBING

Your own soundtrack may be substituted onto a previously recorded tape by using either a microphone, or the output of a tape recorder. This unit can be made to dub on audio channel 1 or channel 2 separately, and if connected to CH1 and CH2 at the same time, sound can be recorded on the audio tracks CH1 and CH2.

Connections



Connection with Microphones



If the microphone and audio cables are connected at the same time, only microphone sound will be recorded.

Switch Settings

- Set Input Signal Selector to "LINE".
- Turn the VTR "ON".
- Insert a cassette. Make sure that the tab is in place.
- Turn the TV Monitor "ON" and select the same channel as the VTR (unused broadcasting channel).
- Set the EXT Timer Selector to "OFF".
- Set the Audio Dubbing Selector to the desired position.
  - **CH1** : When dubbing audio CH1 only.
  - **CH1/CH2** : When dubbing audio mixed CH1 and CH2 audio.
  - **CH2** : When dubbing audio CH2 only.
- Clear the Tape Memory.

Operations

1) Locate the tape segment where you wish to start audio dubbing by using the JOG/SHTL Dial.
2) Turn the JOG/SHTL Dial to the Still Mode.
3) Press the Audio Dub and Play Buttons at the same time. The audio dubbing will start.

When Searching for the Segment to be Dubbed

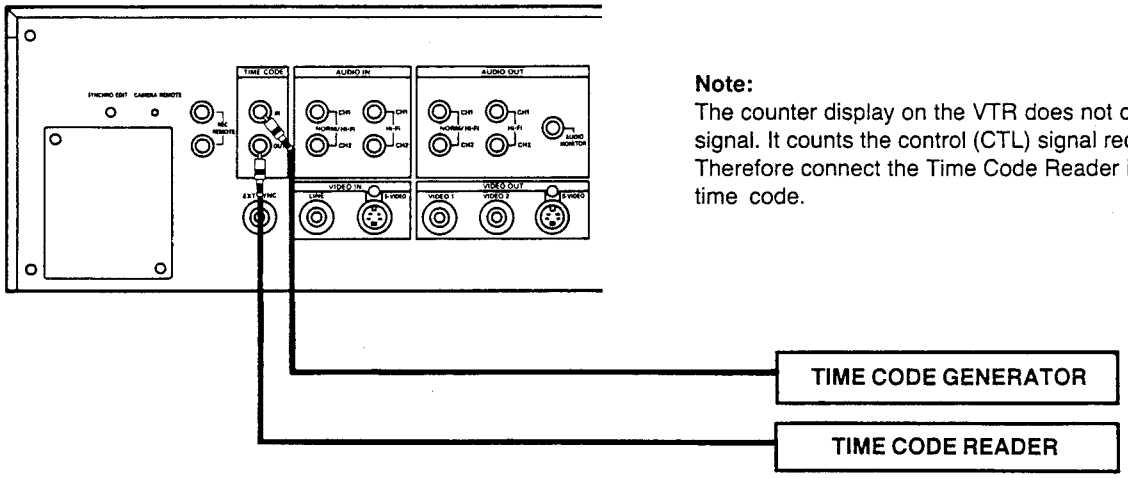
1. Make the search speed constant.
2. Press the Pause/Still Button to activate the Still Mode.
3. When advancing a little more...
   Release Still mode by pressing the Pause/Still Button once again.

Repeat steps 1–3 until the desired segment is located.

TIME CODE

In order to record the EBU TIME CODE signal, connect the EBU time code generator to the Time Code Input Jack during recording, and select "TIME CODE" on the Audio CH2 Selector. Then time code signal will be recorded on audio CH2 track.

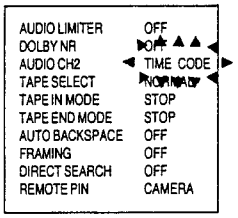
Connections



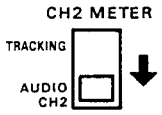
Note:
The counter display on the VTR does not count the time code signal. It counts the control (CTL) signal recorded on the tape. Therefore connect the Time Code Reader in order to read the time code.

Operations

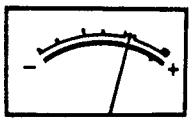
1) Set the Audio CH2 Selector to "TIME CODE", by ON-SCREEN mode.



2) Set the CH2 Meter Selector to the "CH2" position.



3) When the Time Code Signal is connected, Audio CH2 Meter indicates 0.



Time code signals may be recorded during the normal recording or dubbing (including audio dubbing) modes. For details, refer to the Operating Instructions of your time code generator/reader.

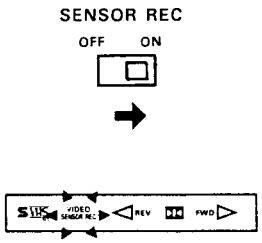
SELECTOR SWITCHES

Video Sensor Recording Switch

If a video signal is input, the power is turned ON automatically and the recorder VTR goes into the recording mode. When there is no more signal, the recorder VTR goes into the stop mode and then the power is turned OFF. Such is the function of this switch.

1. Perform the following operations before turning ON the switch:
   1) Turn ON power and insert a cassette in the recorder VTR.
   2) Connect the video signal cable to the video input connector and set the Input Signal Selector to "LINE".
   3) When you wish to record the audio signal as well, connect the audio cable to the Audio Input Jack.

2. After completion of the above, turn ON the Sensor Rec Switch. The "SENSOR REC" lamp will light and the power of the recorder is turned "OFF" at the same time. If a video signal is supplied to the input connector, the power is turned "ON" and the recorder goes into the recording mode.



3. When there is no more signal, the recorder VTR goes into the stop mode and, after a while, the power is turned "OFF" again.

Notes:

1) For normal recording and playback, set this switch "OFF".
2) If you place this switch "ON" during recording, the recorder VTR goes into stop mode.
3) If the level of the input signal is not appropriate, this operation may not be possible and an error may occur.

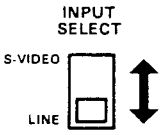
- Video Sensor Recording will only operate to Composite Input Signal.
- The appropriate level of the input signal is 1.0 Vp-p 75Ω unbalanced.
- The Sensor Rec Lamp will flash when there is no cassette tape inserted, tape with broken removable tabs is inserted or the TV SYSTEM Selector is set to "NTSC 4.43".

Input Signal Selector

The Input Signal Selector is used to select the source of audio and video inputs.

S-VIDEO: To record video signals from an S-VIDEO source connected to the 4P S-VIDEO Connector, set the Input Selector to "S-VIDEO" position.

LINE: To record audio and video signals from an Audio/Video source through the Video Input Connector (BNC) and Audio Input Jack (PHONO), set the Input Signal Selector to "LINE" position.



Sync Mode Selector

The Sync Mode Selector is used to determine the source to which the video recorder will be synchronized during Recording, Playback, and Editing (Dubbing).

EXT: The tape is synchronized with the external composite sync which is connected to the External Sync Input Connector on the rear panel. For better dubbing stability, synchronize with an external composite sync signal.

NORM: The tape is synchronized to the input video signal. This mode is used for normal recording, playback and dubbing.

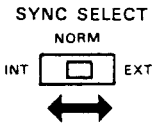
Notes:

(1) If during playback, the input signal is noisy or unstable (i.e. not **50 Hz** frequency), switch to the "INT" position.

(2) If during playback, there is no input video signal present, synchronization automatically switches to internal reference.

INT: The tape is synchronized to the internal 50 Hz oscillator (derived from internal crystal source). This mode is primarily used for playback. When recording, the setting is set automatically to the NORM mode.

Note: TV system NTSC 4.43 is 60 Hz.



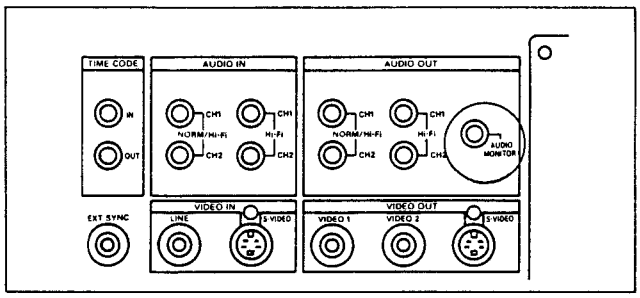
Position of Sync Mode Selector	Playback	Recording
INT	○	×
NORM	○	○
EXT	*1	*1

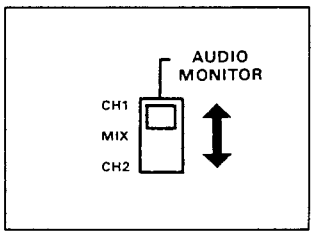
*1: Be sure to connect the External Sync Signal.
Note: TV system NTSC 4.43 is always set to "INT".

Audio Monitor Output Channel Selector

This is to select the audio channel 1, channel 2 or both channels for monitoring through Audio Monitor Output jack. The audio monitoring level can be adjusted on the TV Monitor. When monitoring through the headphone connector, see page 17.

Note:
When the Audio CH2 Selector (ON-SCREEN mode) is set to "TIME CODE", set this switch to "CH1". (When the switch is set to "MIX" or "CH2", recorded time codes can be heard.)





Setting of Audio Monitor Output Channel Selector	Audio Monitor Output Jack
CH1	Audio from channel 1 only
MIX	Sound from both channels is mixed
CH2	Audio from channel 2 only

Note:
When using the Audio Output Jacks CH1/CH2, audio signals are not affected by the Audio Monitor Output Channel Selector setting.

S-VHS Selector

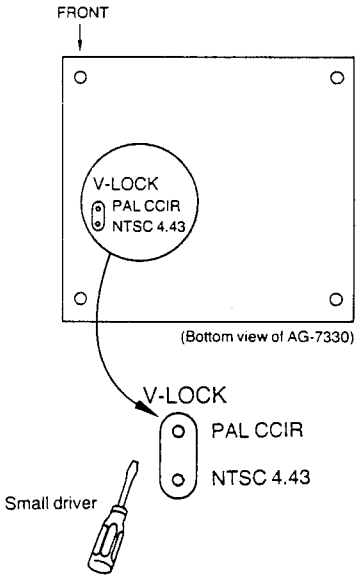
Normally use this selector in the "ON" position.

- When desired to record the S-VHS tape in the VHS mode, set the S-VHS Selector to the OFF position.
- Table described below is the recording reference between the S-VHS Selector and the tape.

S-VHS Selector \ Tape	VHS	S-VHS
ON	VHS	S-VHS
OFF	VHS	VHS

Vertical Lock Adjustment

- If picture jitters vertically in STILL, adjust the V-Lock Control, but a one time adjustment should be necessary.
  If monitor TV Set has a vertical hold control, adjust this together with the V-Lock Control.

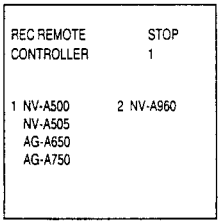


CONTROLLER

Setting

When using a controller, set the Remote and the Controller Selectors (ON-SCREEN mode) to the appropriate position.

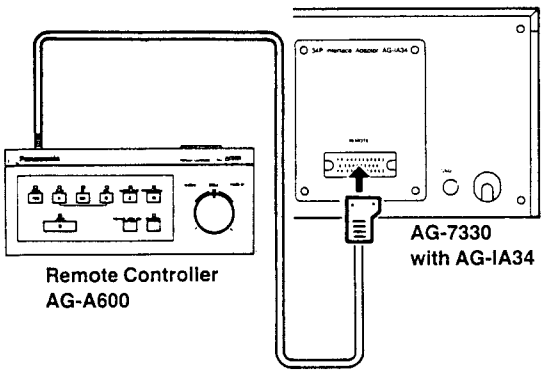
1) Press the SCREEN DISPLAY and DOWN Buttons simultaneously and display the Initial Setting.
2) Press the SHIFT Button. The display below will appear.
3) Press the DOWN Button. The "Controller Select" line will flash.
4) Press the DATA Button and select "1" or "2".



5) Be sure that the optional 34P Interface Adaptor (AG-IA34) is connected to the VTR.

Remote Controller AG-A600

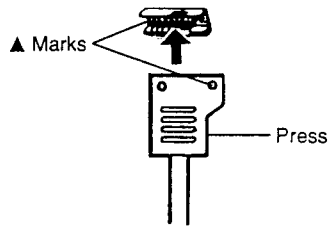
The unit's functions can be controlled from a distance when the AG-A600 optional Remote Controller is connected to the unit's Remote Control Connector section with 34P Interface Adaptor.



Remote control functions include recording, playback, fast forward, rewind, pause, variable tape speed playback (0~9 times normal tape speed), reverse playback (same variable range) and stop. Operation is still possible with the unit's function buttons even when the Remote Controller AG-A600 is connected to the unit.

Note:
Be sure to set the Controller Selector (ON-SCREEN mode) to "1".

•When connecting to the remote connector

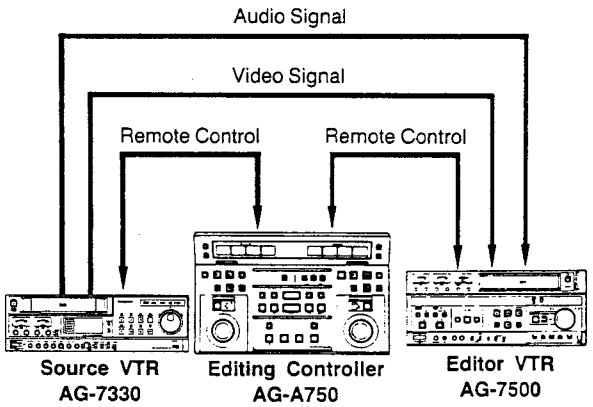


Align the "▲" marks and press the cable connector button to connect or disconnect.
For details, read the Operating Instructions of the AG-A600.

Editing Controller NV-A500/NV-A960/ AG-A650/AG-A750

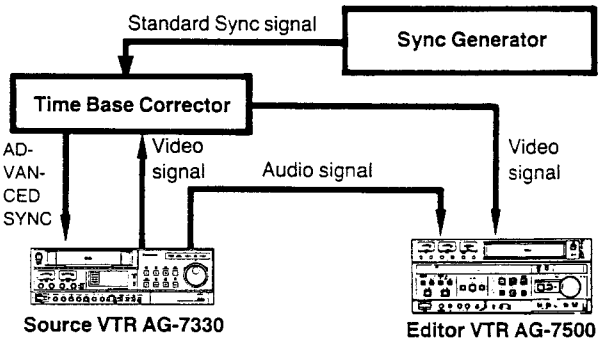
The AG-7330 may be used as a source player in an editing system.

This is the basic system for dubbing between a source unit and an editor unit when one source unit, one editor unit and the editing controller are used together.



•This is available for S-VHS and VHS.

For better edit stability, connect an external sync signal generator as follows;

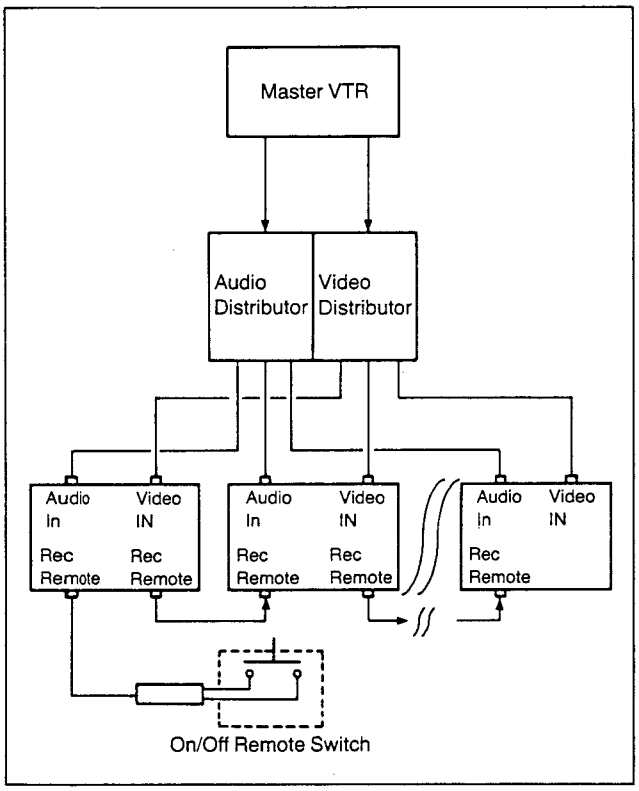


For details, read the Operating Instructions of the editing controller.

REMOTE

Record Remote Connectors

This connector is used to dub or edit the master VTR's tape to two or more slave VTRs at the same time.



With the On/Off Remote Switch to "OFF" during operations, the following kinds of function are possible with this connector.

- During recording, the VTR is automatically stopped.
- During recording, the VTR is automatically paused.
- During recording, the VTR is automatically stopped, and then cassette tape is automatically ejected.
- During recording, the tape is automatically rewound to its beginning, the unit stops, and the cassette tape is automatically ejected.

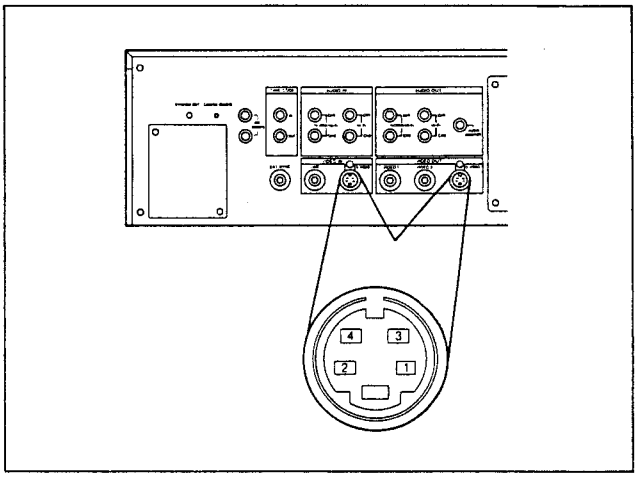
For details, consult your Panasonic service personnel.

Camera Remote Jack

When this is connected to a video camera which has a pause function, remote pause of the VTR can be accomplished from the Camera Pause Remote Controller (VW-RM1E).

INTERCONNECTIONS

S-VIDEO Input/Output Connector (4P)



Pin No.	Contents	Pin No.	Contents
1	Y GND	3	Y Signal
2	C GND	4	C Signal

A WORD ABOUT THE CASSETTE

Types of Cassette Tape

■ **Types of S-VHS Cassette tapes**

•PAL colour

Types	Record/Playback Time
NV-SE180E	3 hours
NV-SE120E	2 hours
NV-SE60E	1 hour

•EIA, NTSC 4.43 colour

Types	Playback Time
NV-ST120P	2 hours
NV-ST60P	1 hour

■ **Types of VHS Cassette Tapes**

•CCIR, PAL colour

Types	Record/Playback Time
NV-E240	4 hours
NV-E180	3 hours
NV-E120	2 hours
NV-E90	1 hour 30 minutes
NV-E60	1 hour
NV-E30	30 minutes

•EIA, NTSC 4.43 colour

Types	Playback Time
NV-T160	2 hours 40 minutes
NV-T120	2 hours
NV-T60	1 hour
NV-T30	30 minutes
NV-T20	20 minutes

Notes for Video Cassette Use

■ **Compatibility with conventional recording system**

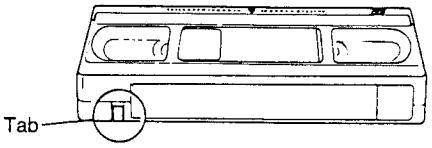
The conventional (normal) recording mode is provided, and the tape recorded by the normal mode can be played back by the conventional video deck. Also, a tape recorded by a conventional deck can be reproduced by this unit.

- The tape recorded by the S-VHS system in this unit cannot be reproduced by the conventional VHS video deck.
- CCIR system (VHS only) can be both recorded and played back, but NTSC 4.43 VHS/S-VHS tapes can only be played back.

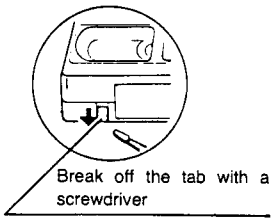
■ In addition to the tapes specified, the VTR will accept any cassette tape which has the S-VHS and VHS mark.

Accidental Erasure Prevention

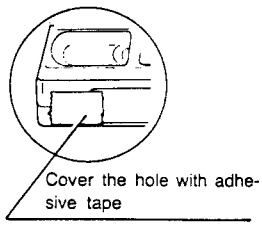
To prevent accidental erasure of recorded material, the VHS cassette has a removable tab on the rear side.
The tab can be broken off by a small screwdriver. After it has been removed, the tape can be used for playback only.
To record on a cassette from which the tab has been removed, simply cover the hole with a piece of adhesive tape.



To prevent accidental erasure



To record again



Video Cassette Storage

Always put the cassette back in its case before storage. Store in a vertical position.
Keep in a cool, dry place. Avoid storage in direct sunlight or near sources of heat. Do not place a recorded cassette in a magnetic field, such as that produced by an electric motor or power transformer... the magnetic field might accidentally erase the tape.
Do not drop or otherwise subject the cassette to shock impact.
For best results, store the cassette with the tape fully rewound. If the tape has been rewound unevenly, rewind it again to pack the tape properly.

- The tape in a VHS cassette should not be specified. Do not attempt to repair or open the cassette.
- Do not touch the tape surface itself. Dirt and oil from your skin may deteriorate the tape coating.

INTERFACE ADAPTOR (Option)

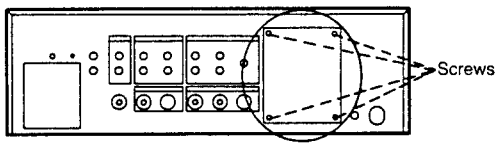
The units listed in the table below can be connected to this VTR if their corresponding Interface Adaptors are installed in the remote control connector's section.

Interface Adaptor	Model No.	Connectable Units (option)
RS-232C Interface Adaptor	AG-IA232	•AG-A730
34P Interface Adaptor	AG-IA34	•AG-A750 •AG-A650 •NV-A500 •NV-A960 •NV-A505 •AG-A600

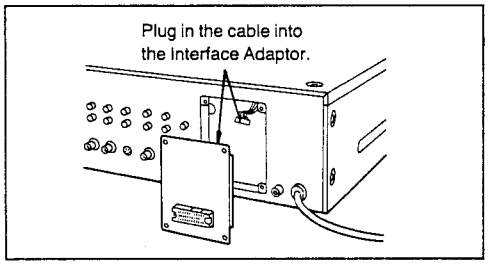
Installation of the Adaptors

Accessories: Screws ..... 4 pcs.

1. Untighten the screws and remove the blank panel of the VTR.



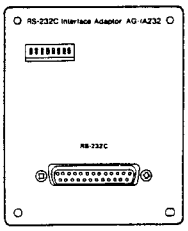
2. Connect the desired Interface Adaptor.
   Note:
   Be sure to plug the cable of the VTR into the Interface Adaptor as shown below.



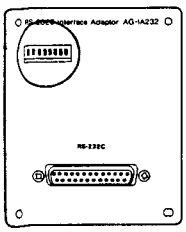
3. Tighten up the screws.

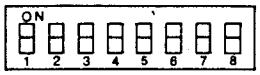
RS-232C Interface Adaptor

•AG-IA232



•Dip Switch of AG-IA232





The Dip Switches 2~7 under RS-232C Interface are as shown below.
(Dip Switches 1 and 8 are not used.)

•Stop Bit

	SW2
1 Bit	ON
2 Bit	OFF

•Parity

	SW3	SW4
NONE	ON	ON
ODD	OFF	ON
NONE	ON	OFF
EVEN	OFF	OFF

•Baud Rate

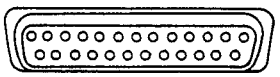
	SW6	SW7
4800	ON	ON
2400	OFF	ON
1200	ON	OFF
600	OFF	OFF

•Bit Length

	SW5
7 Bit	ON
8 Bit	OFF

When the VTR is connected to the optional Remote Controller AG-A730, the operation buttons, mode selection, dial function, etc. can be remote controlled.
For details about AG-IA232, please contact your authorized local dealer.

•Signal of Connector (25P)



Pin No.	Contents	Pin No.	Contents
1	GND	7	GND
2	TXD	8	——
3	RXD	9	5 V*1
4	RTS	10	5 V*1
5	CTS	11~24	——
6	——	25	12 V*1

*1: Depending on the connection, pin No. 9, 10, 25 may be no connection. For details, please contact your authorized local dealer.

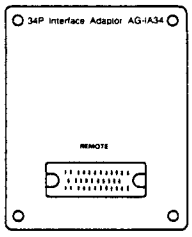
•Specifications

Operating Temperature:	5°C~40°C
Operating Humidity:	35%~80%
Dimensions:	82 (W)×100 (D)×24 (H) mm
Weight (approx.):	150 g

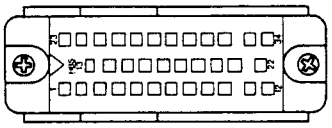
Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

34P Interface Adaptor

•AG-IA34



•Signal of Connector (34P)



Pin No.	Contents	Pin No.	Contents
1	REC SWITCH*	18	CONTROL PULSE OUT
2	PLAY SWITCH	19	REMOTE 19
3	FF SWITCH	20	START MARK
4	REW SWITCH	21	EJECT SWITCH
5	STOP SWITCH	22	——
6	AUDIO DUB SWITCH	23	REC HOLD
7	PAUSE SWITCH	24	PLAY HOLD
8	CASSETTE IN	25	FF HOLD
9	AUDIO DUB SWITCH	26	REW HOLD
10	FF, REW SLOW DOWN	27	——
11	——	28	AUDIO DUB HOLD
12	GND	29	PAUSE HOLD
13	FRAME ADV. SWITCH	30	REMOTE 30
14	REVERSE COUNT	31	AUDIO DUB HOLD
15	——	32	——
16	EDIT SWITCH	33	REMOTE 33
17	REVERSE	34	+12 V

***Note:**
When the voltage on the pin is LOW, the unit will go into the REC mode.

•Specifications

Operating Temperature:	5°C~40°C
Operating Humidity:	35%~80%
Dimensions:	82 (W)×100 (D)×28.5 (H) mm
Weight (approx.):	130 g

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

RACK MOUNT ADAPTOR (Option)

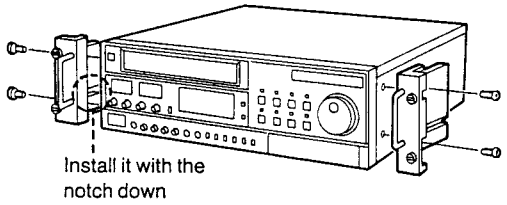
- This adaptor (AG-M730) is used to mount the AG-7330 on the IEC 19" standard rack.
- Use the IEC 19" standard rack.
- Use a complete slide rail and bracket unit for 18" length (part No. CC3004-99-0017) or 24" length (part No. CC3004-99-0018) of Chassis Trak.

Accessories

Screws (for slide rails) M4 ..... 4 pcs.

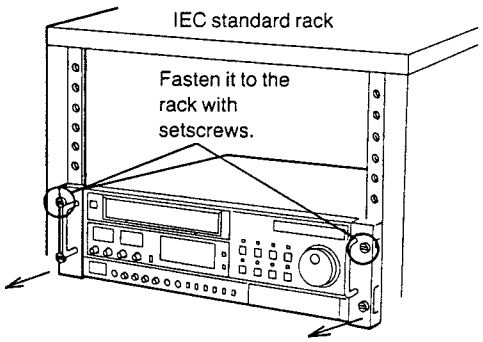
Installation of Rack Mount Adaptor

Remove the screws on the recorder side. Then use the M4 screws (supplied) to install the Rack Mount Adaptor.



Mounting onto the rack

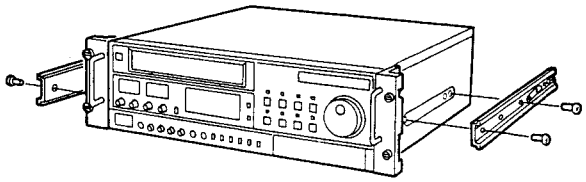
- Remove the rubber legs (4 pcs.) from the bottom of the recorder.
- When mounting the recorder on the rack, be sure to install a ventilation fan (air volume of about 3.3 m³/sec.) on top of the rack.



When using the slide rail, remove the setscrews. The setscrews can be removed by pulling in the direction of the arrow. Keep the remove setscrews, washers and spacers in a proper place.

Installation of slide rails

- Use a complete slide rail and bracket unit for 18" length (part No. CC3004-99-0017) or 24" length (part No. CC3004-99-0018) of Chassis Trak.
  (The complete slide rail and bracket unit is not available from Panasonic.)



- For the details, contact your local dealer.

MAINTENANCE NOTES

AUTO OFF Function

The following error messages will display and the tape counter will flash if an abnormality occurs while the tape is traveling (if the tape becomes slack, for example). In this case, consult with the shop where you purchased your unit.

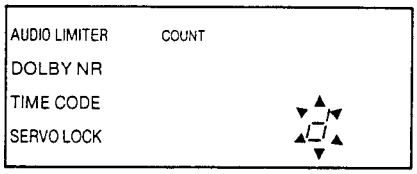
Error Message	Check Points
E-2	ELEVATOR Trouble
E-3	LOADING Trouble
E-4	CYLINDER LOCK
E-5	REEL LOCK
E-6	TENSION Trouble

DEW Indicator

In case of dew detection (excessive moisture in the unit) the safety device of this unit will operate in order to protect the cassette tape and video head.

•In case of dew detection

The " ⌂ " mark in the tape counter lights up.



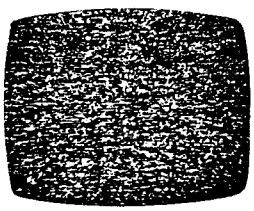
If a cassette tape is inserted, it will be automatically ejected. Wait until " ⌂ " mark goes out with the power switch turned "ON". It may take a few hours, although it depends upon conditions.

Notes: Dew is formed under the same principle that condensation will form on window panes in a heated room, and it may be evident in the following circumstances:

- In a room where the heater has just been switched on in the winter.
- In a room where there is a high level of moisture or steam.
- In a warm room when the video recorder has been brought from a cold location.

Video Head Clogging

Good Picture



Snowy Picture

The video heads are the means by which the recorder places pictures on the tape during recording, and reads pictures from the tape during playback.
In the unlikely even that they become dirty enough to be clogged, no picture will be recorded or played back. This can easily be determined if, during playback of a known good tape, there is good sound, but no picture (picture is extremely snowy). If this is the case, have the recorder checked by qualified service personnel.

Cleaning the VTR

Wipe the VTR with a clean, dry cloth. Never use cleaning fluids, chemicals or wax.

Keep water away

Keep the VTR away from flower vases, tubs, sinks, etc.
CAUTION: If liquids should be spilled into the VTR, serious damage could occur. If you spill any liquid into the VTR, remove power and consult qualified service personnel.

- Do not insert fingers or any other objects into the video cassette compartment.
- Avoid operating or leaving the unit near strong magnetic fields. Be especially careful of large audio speakers.
- Avoid operating or storing the unit in an excessively hot, cold, or damp environment as this may result in damage both to the recorder and to the tape.
- This unit is supplied with a 3-prong grounded AC plug—do not try to defeat its purpose.
- Do not spray any cleaner or wax directly on the unit.
- If the unit is not going to be used for a length of time, protect it from dirt and dust by using the dust cover.
- Do not leave a cassette in the recorder when not in use.
- Do not block the ventilation slots on the top of the unit.
- Use this unit horizontally and do not place anything on the top panel.
- Cassette tape can be used only for one-side, one direction recording. Two-way or two-track recordings cannot be made.
- Cassette tape can be used for either Colour or Black & White recording.
- Do not attempt to disassemble the recorder. There are no user serviceable parts inside.
- If any liquid spills inside the recorder, have the recorder examined for possible damage. Remove power immediately.
- Refer any needed servicing to qualified service personnel.

TROUBLE SHOOTING

Conditions	Inspection and Adjustment	Reference page
If there is no power to the unit	•Is the Power Plug inserted?	—
	•Is the unit in the AUTO OFF mode?	47
	•Are the connections correct?	—
	•Have all the switches been set properly?	—
	•If still no power after checking the "Inspection and Adjustment" above, turn the power OFF for a few minutes and to ON again.	—
If no operation starts when either the Record or Audio Dubbing Button is pressed	•Is the small tab (removable tab) on the back of the tape still intact?	43
	•Is the TV SYSTEM Selector set correctly ("PAL" or "CCIR")?	16
If no change in counter display	•Is the control (CTL) signal recorded on the tape?	6
	•Is the tape counter mode set to "COUNT" mode?	6
If the tape remaining time is not correct	•Is the TAPE Selector (ON-SCREEN mode) set to the correct position?	12
If record (or playback) mode is engaged when the Power is turned ON	•Is the Timer Selector set to "OFF"?	16, 19
	•Is the SENSOR REC Switch set to "ON"?	8
If the cassette tape cannot be inserted or removed	•Is the Power Switch set to "ON"?	—
If the playback image is completely distorted	•Is there a supply voltage fluctuation during recording?	—
	•Is horizontal hold control of TV monitor set correctly?	—
	•Is the cassette tape in good condition?	—
	•Is the Sync Mode Selector set correctly?	8
	•Is the TV SYSTEM Selector set correctly?	19
If no operation with button pressed	•Is the video cassette inserted correctly?	—
	•Is the " ⏍ " mark in the tape counter flashing?	47
	•Is the OPERATION Selector set to "LOCAL"?	8
	•Is the SENSOR REC Switch set to "ON"?	8
If recording is discontinued	•Check if video cassette tape is at the end. •Check if more than 5 minutes has passed after pressing Pause/Still Button during recording.	—
	•Carry out the daily maintenance sufficiently. There must be something wrong if this kind of trouble takes place often. In that case, contact your authorized local dealer.	47
If auto repeat playback is not possible	•Check that COUNT REPEAT or VASS REPEAT (ON-SCREEN mode) is "1 TIME" or "CONTINUE".	20, 28
	•Was the STOP Button pressed during auto rewind mode?	—

PRECAUTION FOR HANDLING UNIT

■ Vibration
Do not use the unit in a location where there is much vibration.

■ Magnetism
Do not bring the unit near magnetic fields or electrical equipment which generates strong magnetic fields.

■ Temperature
Under no circumstances use the unit in a very hot or cold location or a location which is exposed to direct sunlight. This is because the performance of the unit may be degraded.

■ Humidity
Electrical appliances generally do not readily withstand humidity. Do not install the unit in a very humid location or a place where rain is likely to reach it.

■ Cleaning the unit
Before cleaning the unit, turn "OFF" the Power Switch, and be sure to pull out the Power Plug from the power outlet. Clean the cabinet using a soft cloth. If the cabinet is very dirty, immerse the cloth in a diluted solution of dishwashing detergent, wring it hard, and wipe off the dirt, then finish the cabinet with a dry cloth. Do not use paint thinner or benzine.

■ Storing the unit
1. Do not store the unit in a very hot or cold location.

2. Under no circumstances leave the unit outdoors.

3. To prevent a possible breakdown, when not using the unit for some time turn "OFF" the Power Switch and be sure to withdraw the Power Plug from the power outlet. (Under no circumstances pull directly on the power cord because of the risk of breaking the conductor inside.)

4. Be sure and remove the cassette tape from the unit.

■ Installation Conditions
1. Use the unit in a horizontal position.

2. Do not block the ventilation holes in the unit. To improve air circulation, ventilation holes are provided at the top of the unit. Keep the rear of the unit at least 15 cm, and the sides at least 5 cm, away from any walls. Also, do not block up the ventilation holes underneath the unit with carpet, etc.

3. Before moving the unit from one place to another, be sure and remove the cassette tape.

4. To ensure that the unit can be used without breakdown, do not place objects on top of it.

5. When using the unit on a base, provide a firm base.

6. If you abruptly warm the room in which the unit is installed using a gas stove, etc., or quickly move the unit from a cold place to a warm place, the resulting sudden change in temperature may cause condensation and prevent the tape from traveling properly. As far as possible, therefore, use the unit under conditions such that the temperature does not change abruptly. If condensation occurs inside the unit, the " $\mathcal{d}$ " mark (condensation indicator) will light, and the unit will stop operating. In such a case, wait until the lamp goes out.

- When using the unit, do not block the ventilating holes at the top.
- When mounting this unit on a rack, use a rack which is provided with a fan.
- In the event of an abnormality, immediately turn the Power Switch "OFF" and remove the Power Plug from the power outlet, then contact the shop where you purchased the unit. If you continue to use the unit without removing the cause of the abnormality, the extent of the fault may increase or an unforeseen accident may result.

SPECIFICATIONS

Power Source:	AC 220–240 V, 50–60 Hz
Power Consumption:	Approx. 55 W

Television System:	CCIR Standard (625 lines, 50 fields) PAL colour signal EIA (525 Lines, 60 fields) 4.43 MHz modified NTSC colour signal		
Video Recording System:	2 rotary heads, helical scanning system Luminance: FM azimuth recording Colour signal: converted subcarrier phase shift recording		
Audio Track:	4 tracks (Normal: 2, Hi-Fi: 2)		
Tape Format:	S VHS tape, VHS tape		
Tape Speed:	23.39 mm/s (PAL) 33.35mm/s (modified NTSC)		
Record/Playback Time:	180 min. with NV-SE180E (PAL)		
Playback Time:	120 min. with NV-T120 (modified NTSC)		
FF/REW Time:	About 3 min. with NV-SE180E		
Heads:	Video: 4 rotary heads Audio 2 rotary heads (Hi-Fi 2ch) Audio/control: 1 stationary head (Normal Audio) Erase: 1 full track erase 2 selectable audio track erase heads for audio dubbing 1 flying (rotary) erase head		
Input Level:	S-Video (4P DIN): Y;	1.0 Vp-p,	75Ω unbalanced
	C;	0.3 Vp-p, burst level,	75Ω unbalanced
	Video: VIDEO IN connector (BNC)	1.0 Vp-p,	75Ω unbalanced
	MIC×2	−60 dBv,	4.7 kΩ unbalanced
	LINE IN JACK (PHONO)×2	−8 dBv,	47 kΩ unbalanced
	Composite sync: (BNC)	4.0 Vp-p, negative pulse,	75Ω unbalanced
	Time code: (PHONO)	1.0 Vp-p,	10 kΩ unbalanced
Output Level:	S-Video (4P DIN): Y;	1.0 Vp-p,	75Ω unbalanced
	C;	0.3 Vp-p, burst level,	75Ω unbalanced
	Video: VIDEO OUT connector (BNC)	1.0 Vp-p,	75Ω unbalanced
	Audio: LINE OUT JACK (PHONO)×2	−8 dBv,	600Ω unbalanced
	AUDIO MONITOR OUT jack (PHONO)	0 dBv,	600Ω unbalanced
	HEADPHONES jack	−60 dBv~−20 dBv,	8Ω unbalanced
	Time code: (PHONO)	2.4 Vp-p,	low impedance unbalanced
			*1 Vrms=0 dBv
Video Horizontal Resolution:	VHS: Colour; 240 lines B/W; 300 lines S-VHS: more than 400 lines (Colour, B/W at PAL)		
Audio Frequency Response:	50~12,000 Hz (Normal Audio) 20~20,000 Hz (Hi-Fi Sound)		
Signal-to-Noise Ratio:	Video: 45 dB (Colour) (VHS) 45 dB (B/W) Audio: 50 dB (Normal Audio: Dolby NR ON)		
Hi-Fi Sound Dynamic Range:	90 dB		
Operating Temperature:	5°C~40°C		
Operating Humidity:	35%~80%		
Weight:	Approx. 12.0 kg		
Dimensions:	424 (W)×132 (H)×420 (D) mm		

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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